THE PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY

PULP & PAPER

JANUARY 1951
Vol. 25 No. 1

ANCIENT MEXICAN PYRAMID ON LAVA-STREWN PLAIN
OUTSIDE YARD OF MEXICO'S OLDEST MILL (See Page 40)

TREES AND TIRES may appear to have little in common. Actually, more than two-thirds of the tires made in this country today depend upon wood to provide longer life – added safety – and lower cost.

The strong tough cords and fabric around which these superior tires are built are made of viscose rayon yarn produced by chemically converting highly purified cellulose derived from wood.

Rayonier supplies the yarn producers with a type of purified wood cellulose specially developed to help assure production of yarns with the high strength and fatigue resistance required by tire manufacturers.

RAYONIER
INCORPORATED

Producers of highly purified wood cellulose for textiles, tire cord, cellophane, plastics

EXECUTIVE OFFICES: *122 East 42nd Street, New York 17, New York*
MILLS: *Hoquiam, Port Angeles, Shelton, Washington; Fernandina, Florida*

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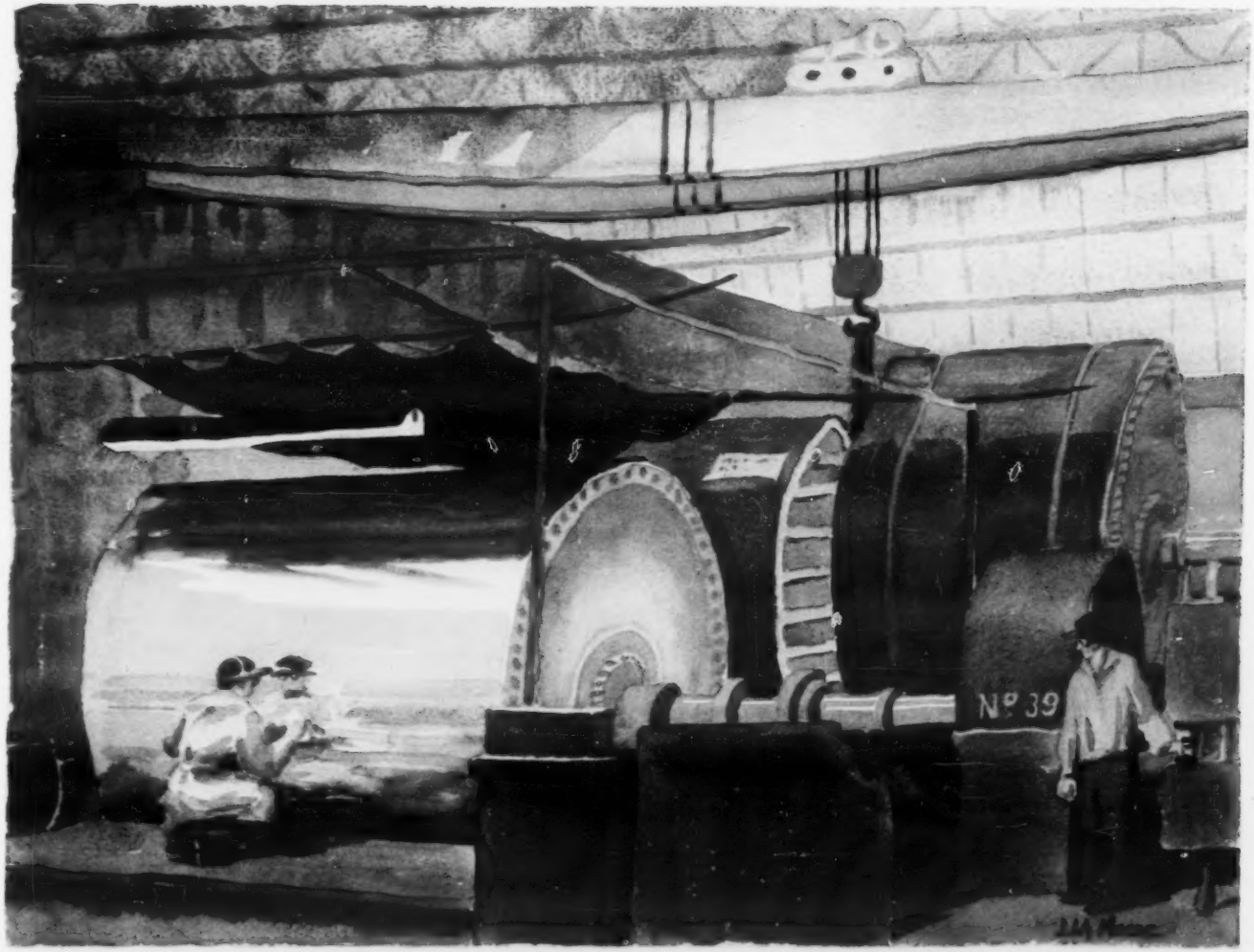
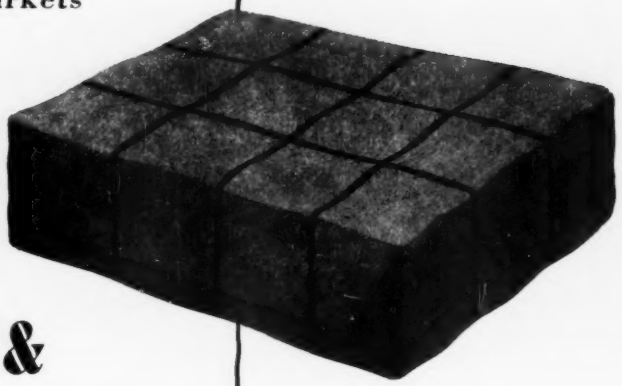


WATER COLOR PAINTING BY L. J. A. HEESE

"PRECISION REFLECTED"... Yankee Dryers in the Beloit Iron Works shop. Inspection of dryer in foreground follows polishing operations. Second dryer is ready for the grinder, third is crated, ready to ship. These huge cylinders, providing the maximum in drying capacity and perfection in finish, are the result of Beloit Iron Works' long experience and extensive research.

Lyddon & Co.

exporters of wood pulp
to all world markets



Parsons & Whittemore

paper exporters
wood pulp

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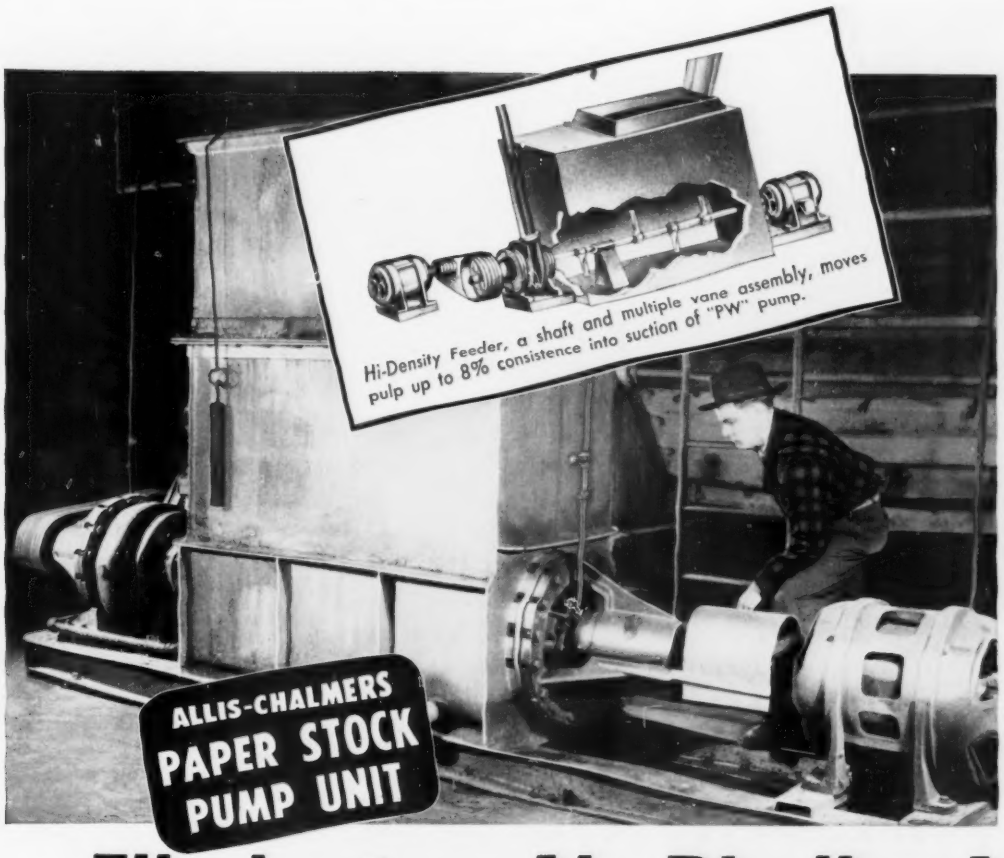
Hi-Density Feeder, a shaft and multiple vane assembly, moves pulp up to 8% consistence into suction of "PW" pump.
ALLIS-CHALMERS
PAPER STOCK
PUMP UNIT

..Eliminates Air Binding!

THIS A-C PUMP UNIT has three distinct advantages in stock pumping:

1. Saves expense of manufacturing and handling wet lap for thickening.

2. Eliminates need of dilution of stock for usual pumping and subsequent thickening for processing.

3. Stock can be stored at higher consistence and pumped to the beaters at desired consistence.

Designed specifically for pumping stock up to 8% bone-dry consistence, the "PW" pump has only four working parts with special alloys to meet toughest paper making applications. Entire rotating element can be removed without disturbing suction or discharge piping.

Available in nine sizes, capacities from 175 to 10,000 gpm — heads to 280 ft. For more details, call your nearby Allis-Chalmers Sales Office. Or write direct.

A-3178

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Texrope, Hi-Density and Streambarker are Allis-Chalmers trademarks.

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AND OTHER EQUIPMENT FOR PAPER MAKING . . .

ALLIS-CHALMERS

Buell van Tongeren Cyclones Can Help You...

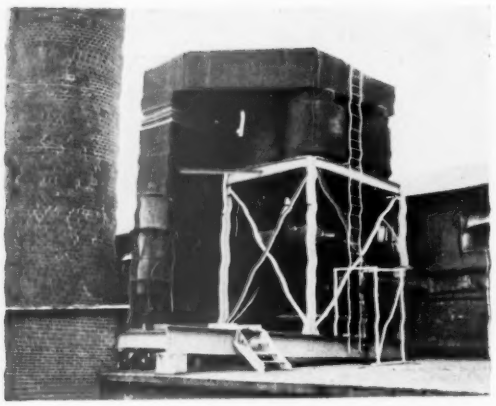
DO A REAL JOB of FLY-ASH COLLECTION on PULVERIZED COAL-FIRED BOILERS!

In plant after plant, where pulverized coal-fired boilers have presented seemingly fathomlesss fly-ash problems, Buell has come up with the answer.

Stated simply it is this: Sustained peak efficiency . . . with the exclusive van Tongeren Cyclone. PLUS—clog-proof, low maintenance construction.

What's more, with a Buell fly-ash collection system *you know your efficiencies beforehand!* You get a true indication of the actual performance of your Buell System—on the job! Performance that has proved capable of meeting even the most stringent demands (of local air pollution ordnances).

If you have a serious fly-ash collection problem, an inquiry will bring help in a hurry. Please address request for information to: Buell Engineering Company, Suite 5027, *70 Pine Street, New York 5, N. Y.*



● *After an exhaustive 5-year study, engineers at a Southern paper mill selected Buell van Tongeren Cyclones for their three pulverized-coal-fired boilers.*

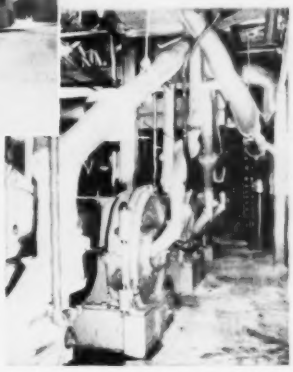
buell

Engineered Efficiency in **Fly Ash Collection**

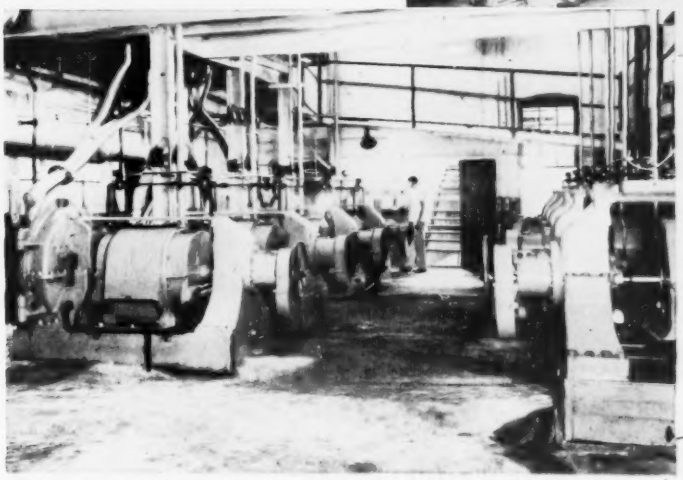
Mills that compare Refiners

Front view of primary stage 400 H. P. refiners. First two units operating on shredded knots and screenings . . . note discharge spout from shredders.

Last three units operating on semi-chemical chips . . . note flexible dilution water lines and electric cable—swing head door side.



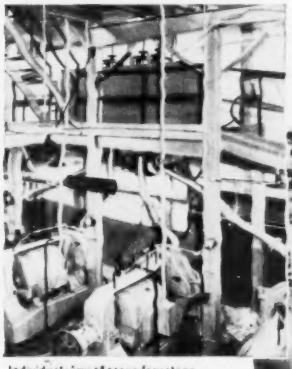
Front view—secondary stage refiners, showing stock inlet piping arrangement . . . note dilution water line at refiner intake.



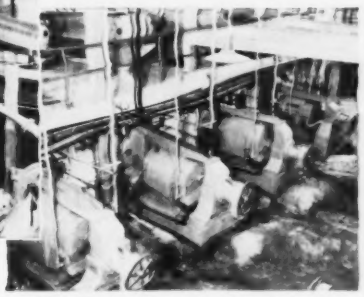
Four 300 H. P. secondary refiners (on left) . . . note stock inlet piping—lubrication oil-flow indicators, and compact arrangement of instrument panel.

The GAYLORD Installation
A battery of 9 Sprout-Waldron Refiners at the Bogalusa, La. plant of Gaylord Container Corp.

choose Sprout-Waldron



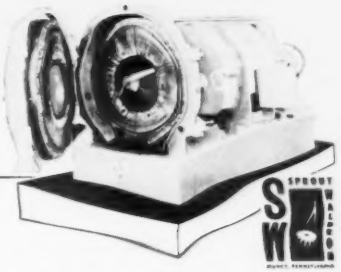
Individual view of secondary stage refiner illustrating stock handling system from regulating box to refiner . . . note ammeter, dial indicator and oil flow indicators.



Top view—primary stage refiners. Two units in foreground on semi-chem chips . . . note dewatering unit directly overhead.

Two units at extreme end operating on knots and screenings . . . note Jeffery shredders located directly above. Note dial indicators—tail end.

Sprout-Waldron Refiners, or "Sprouts" as they are dubbed in the industry, are sprouting up in mills *all over North America. Let* one of our field representatives tell you the facts about the fast-growing popularity of this equipment. Or, write today for Bulletin 41 to Sprout, Waldron & Co., Inc., 32 Waldron St., Muncy, Penna.



—Sprout-Waldron—
Manufacturing Engineers
SINCE 1848
MUNCY • PENNSYLVANIA

165

It's "CURTAINS" for Foam

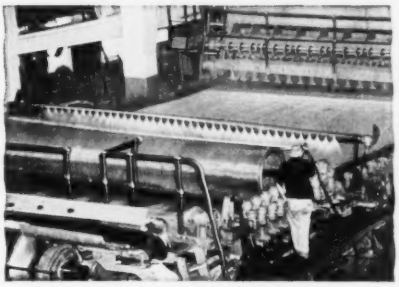
Once you adopt NOPCO KFS*

Yes, when you rely upon Nopco's newly-developed KFS to improve processing and manufacturing conditions, it's the "end of the act" so far as foam is concerned...the end of the highly undesirable role it plays in pulp and paper mill. For Nopco KFS is an exceptionally efficient defoamer – able to eliminate obstinate foam conditions within a matter of minutes.

Stable to chemicals such as alum and chlorine, and to hard water, KFS provides extremely effective control at every stage in pulp and paper making where foam needs to be destroyed. For instance: KFS added to effluents from pulp mill and bleach plant cuts foam to negligible proportions – making disposal of waste liquors easy; added to stock in the paper mill, preceding any point where foaming occurs, it prevents foam development – thus assuring better fibre dispersal, reduced breaks, and improved sheet formation.

Nopco KFS is easily made into a stable emulsion by simply agitating with a paddle. Why not order enough for a trial run? You'll find KFS will do a real job of foam elimination, no matter how great the volume or speed of your production.

Send for free bulletin entitled "Nopco KF * Series – Dispersing Agents for Improving Sheet Formation".



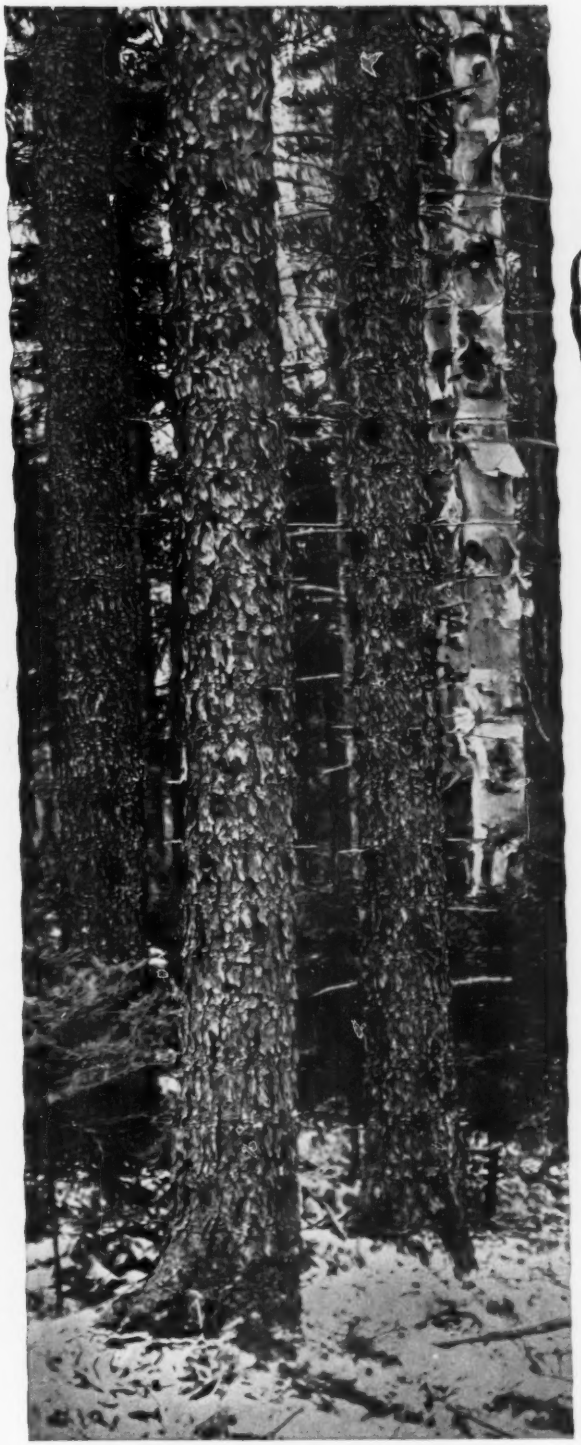
AN EFFECTIVE APPLICATION OF NOPCO KFS is seen in this battery of mist-type nozzles set up across the wire. A dilution of 1/10 of 1% KFS is sprayed through the nozzles onto the stock. This prevents foam formation on the wire, and reduces surface tension of water in the stock.

Result: No excessive volume of water falling back from the high speed dandy roll to disturb fibre formation, and no sticking of the sheet to the first bare roll.

*Reg. U. S. Pat. Off.

NOPCO
EVOLVED THRU RESEARCH

NOPCO CHEMICAL COMPANY
HARRISON, NEW JERSEY
Branches: Boston, Chicago, Cedartown, Ga., Richmond, Calif.



Confidence grows on Trees!

Brown Company's extensive timber holdings give assurance—growing assurance—that manufacturers will always be offered a dependable supply of the finest pulp, either from hardwood or softwood.

For nearly a century, Brown Company's vast resources have provided security for its customers. And definite planning for future growth assures you that you will continue to get the materials you need—when you need them.

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SOLKA & CELLATE PULPS • SOLKA-FLOC • NIBROC PAPERS
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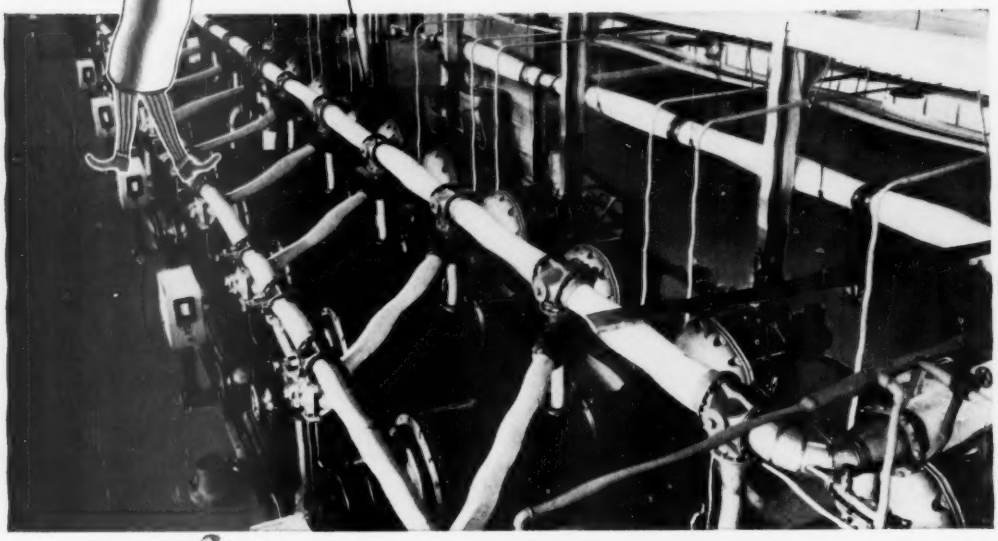
Pipe-fitter Pete says:

"For process lines that stay cleaner longer...



...use Transite Pipe"

If you're looking for process lines that won't discolor paper stock . . . and require only a minimum of attention for cleaning or maintenance . . . Transite Pipe may be the practical answer to your problem.

Like many leading paper mill operators, you'll probably find that Transite Pipe is money-saving insurance against these production problems—and for three good reasons:

It resists corrosion—Made of asbestos and cement by a special Johns-Manville process, Transite is a dense, non-metallic pipe that combats corrosion. It has exceptional resistance to such chemical agents as mild alkalis and acids that often cause deterioration in other pipe materials. Moreover, because *Transite cannot rust, it protects paper stock from* discoloration.

It reduces sliming—Service records in leading paper mills show that Transite Pipe stays cleaner longer. Its unusual ability to resist sliming reduces shutdowns for cleaning—means a minimum of pipe line maintenance.

Its capacity stays high—Transite is inherently immune to tuberculation (a common form of internal corrosion) . . . therefore its original high carrying capacity *stays* high. Thus, pumps can be operated at higher efficiencies—pumping costs, as a *result, remain low.*

Complete Transite Pipe systems, including couplings and Streed Transite Lined Fittings, are available for stock, washed pulp, white water, and other process and water lines. For further *information, write Johns-Manville, Box 290, New* York 16, N. Y.

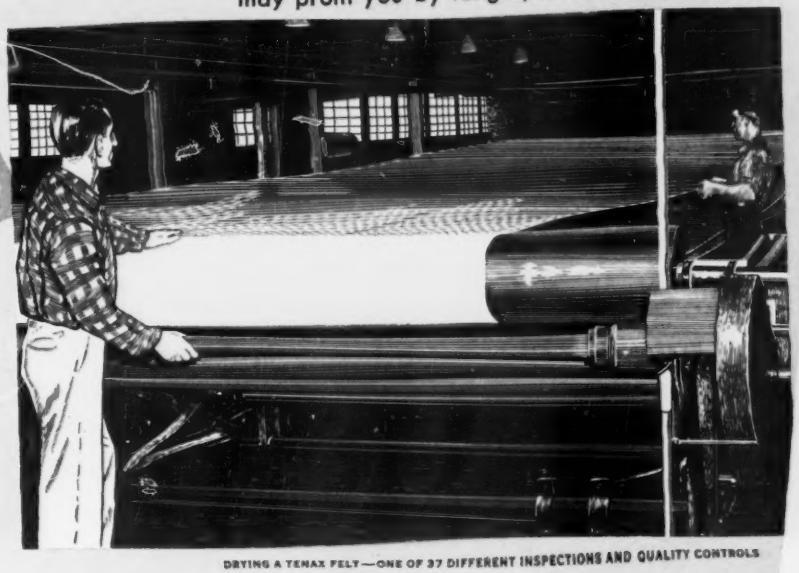
JOHNS-MANVILLE JM PRODUCTS

Johns-Manville TRANSITE PRESSURE PIPE

Transite is a Johns-Manville registered trade mark

TENAX FELTS

are made with care, skill and pride that they may profit you by longer, more efficient service

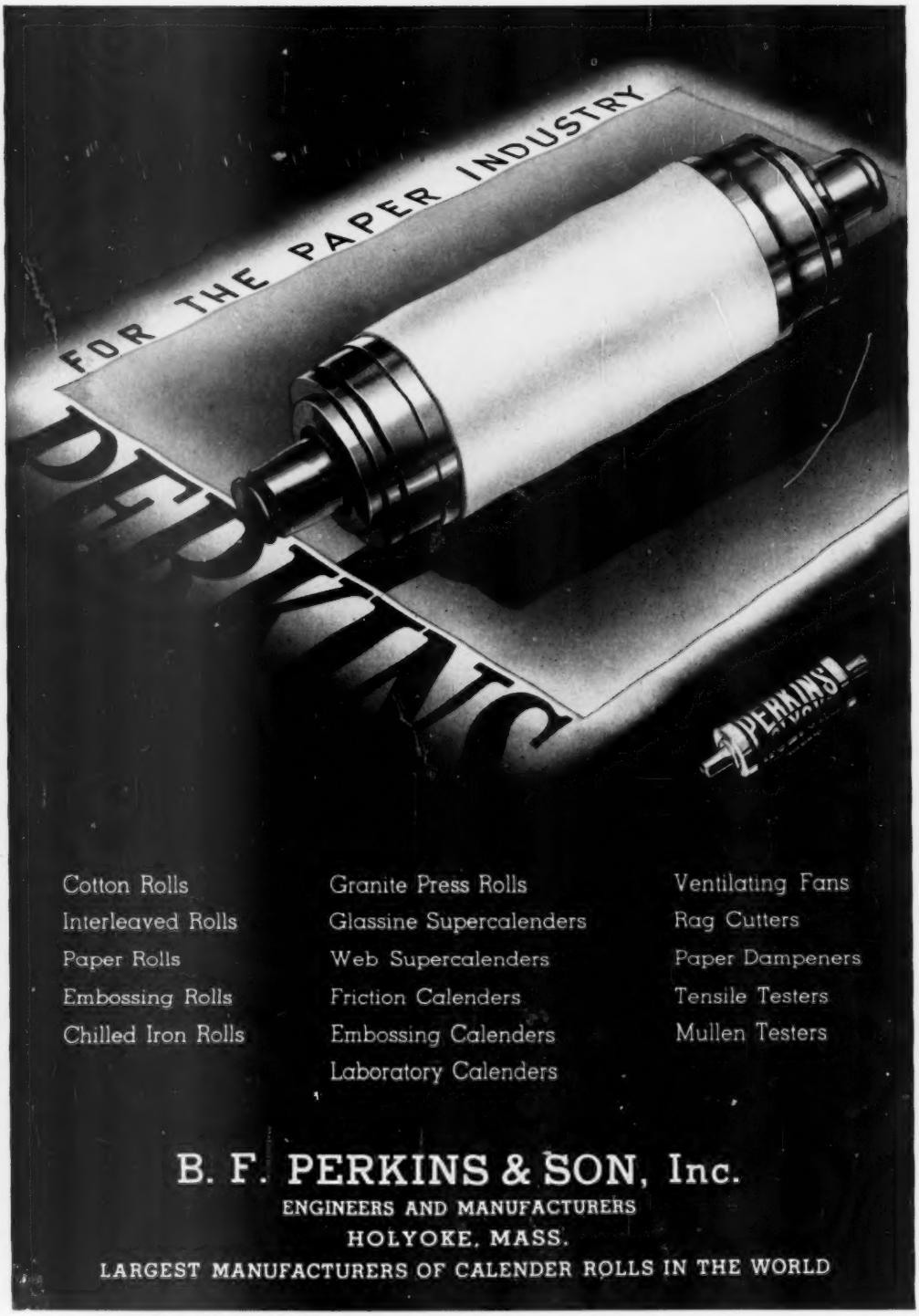


DRYING A TENAX FELT—ONE OF 37 DIFFERENT INSPECTIONS AND QUALITY CONTROLS

From the carding of the virgin wool to the delivery of your Tenax Felt, every step in its making is a point of inspection and quality control. This care exercised at Lockport pays off for you on your paper machines in helping you attain more care-free runs.

The Lockport representative in your territory is fully qualified to advise on all technical questions relating to felts. He is at your service as is our plant and all its people. We invite your inquiries.

LOCKPORT FELT COMPANY • NEWFANE, NEW YORK



Cotton Rolls
Interleaved Rolls
Paper Rolls
Embossing Rolls
Chilled Iron Rolls

Granite Press Rolls
Glassine Supercalenders
Web Supercalenders
Friction Calenders
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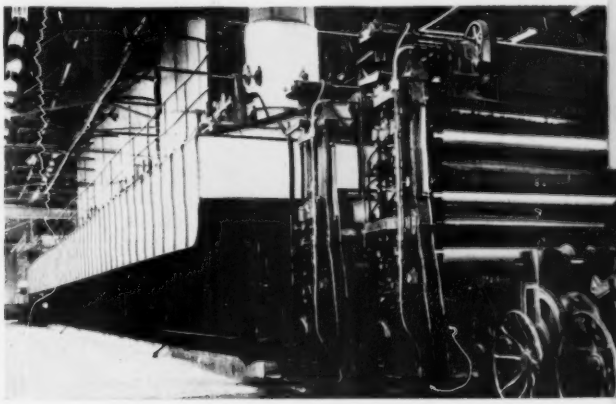
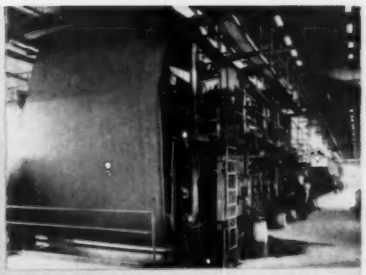
B. F. PERKINS & SON, Inc.

ENGINEERS AND MANUFACTURERS
HOLYOKE, MASS.
LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

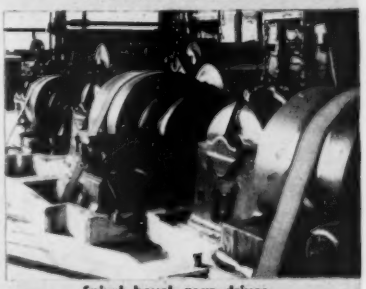
ALL THE LATEST FEATURES



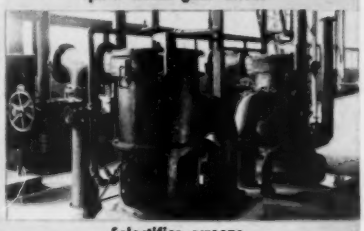


Superimposed press

HYDRONAMIC Inlets



Spiral bevel gear drives



Selectifier screens

Down the decades the most modern and most successful board machines have been those bearing the Black-Clawson name-plate. The 146″, five-cylinder machine here shown, carries on that enviable Black-Clawson tradition.

Overflow type vats with large 60″ molds.

All vats HYDRONAMIC Inlet equipped.

Open Type presses superimposed on vat section.

Dryers 48″ Black-Clawson seamless type.

Drives on machine No. 0 and No. 1 B-C spiral bevel gear type.

Drives on calenders No. 2 B-C spiral bevel gear type, with plug-ejecting mechanism.

All drives air-flex clutch equipped for control from front of machine.

Reel, B-C rugged, convenient Pope type.

Machine almost totally remote controlled from conveniently located panel boards.

Trim 130″, Ultimate speed 600 feet plus, Ultimate capacity 150 tons plus, based on test liner.

Preparatory system by Shartle-Dilts, employing Hydrapulper, cleaning equipment including Selectifier screens; also HYDRAFINERS, Shartle pumps, agi-flo agitation, etc.

NOTE. No flat screens—not required where Selectifier screens are used.

The BLACK-CLAWSON COMPANY

HAMILTON, OHIO

Divisions: SHARTLE BROS. MACHINE CO., MIDDLETOWN, OHIO
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Western Sales Office: Mayer Bldg., Portland, Oregon
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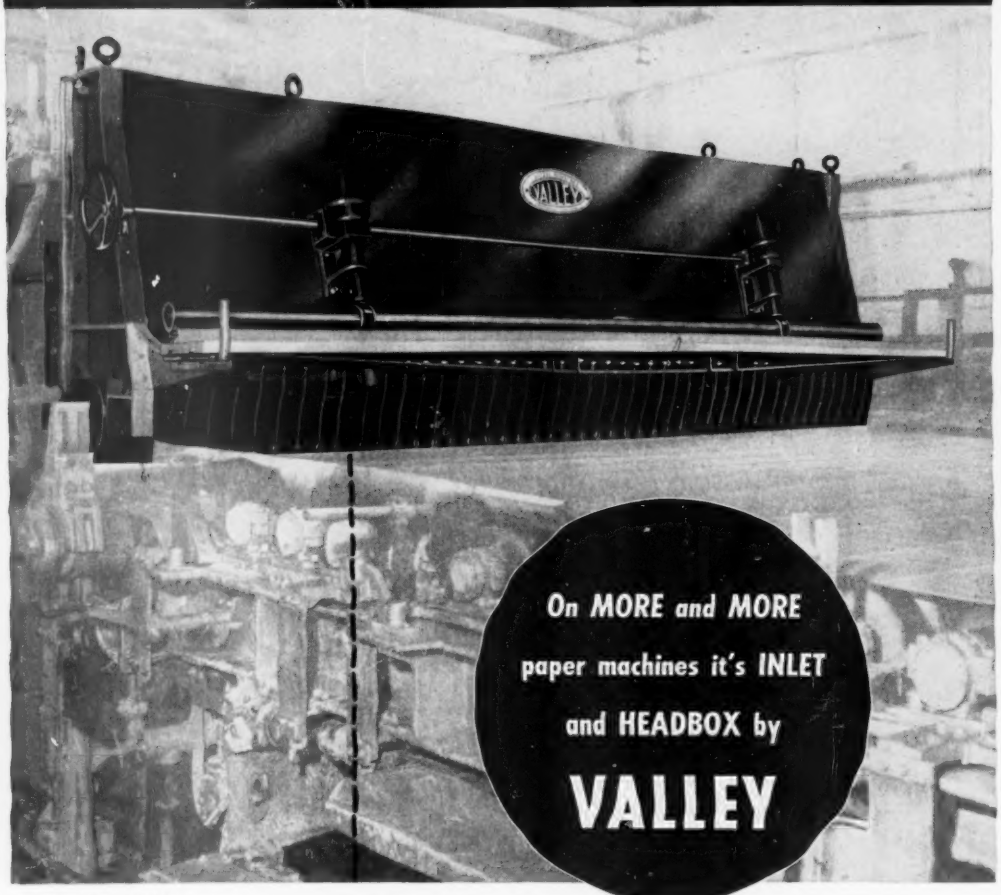
ASHLEY SYSTEM EQUIPMENT
A PRODUCT OF DILTS

Address all inquiries on paper machines, (Cylinder or Fourdrinier) to Hamilton.

This is Valley Stock Entrance Equipment

on NO. 6 MACHINE* at

Fraser Paper Limited, Madawaska, Maine



*Catalog Mill

CALIPER
FORMATION
LEVEL SHEET
INCREASED SPEED
HIGHER TEST

Send us your inquiry regarding improving your inlet and head-box equipment.

VALLEY IRON WORKS CO., Appleton, Wisconsin

New Camachines®

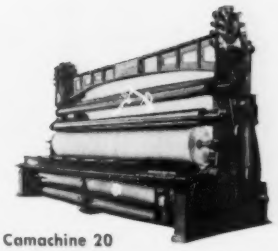
of all types, installed in the first six months of 1950, added more than 105,000 feet per minute (web speed) to industry's potential roll production capacity.

Constantly expanding *Camachine* volume reflects the increasing need for top-quality roll products in the paper, printing, plastics, textile and rubber industries.

Wherever materials are produced or converted in roll form, *Camachines* may be depended upon to provide trouble-free slitting and winding at record-breaking roll production speeds.

There's a reason for *Camachine's* unquestioned leadership... for 57 years Camachine engineers have specialized in the design and manufacture of faster, more dependable roll production equipment.

Camachines raise the standards for roll quality, increase the pace of roll production, reduce the cost of the roll product.



Camachine 20

World's fastest paper mill winder, produces top-quality rolls at speeds up to 5000 f.p.m. on newsprint. Features air-operated slitters. Widths from 180" to 300". Rewound diameters to 40" on paper, 60" on board. Write for the descriptive bulletin "Mile-a-Minute."

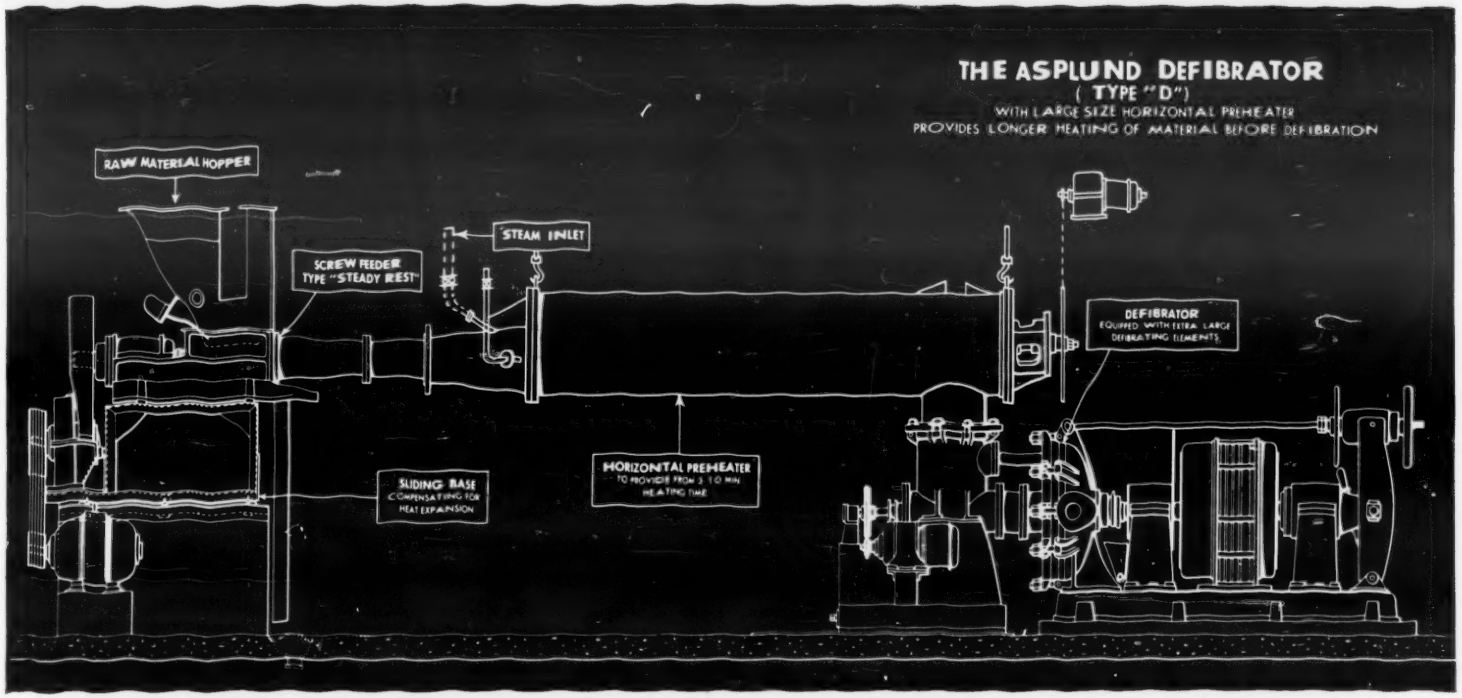
105,000 feet per minute!*

*This figure is a composite of the web speeds of *Camachines* both *large and small* installed during the first half of 1950.

Cameron Machine Company • 61 Poplar Street • Brooklyn 2, N. Y.

Camachine engineers will be pleased to *consult with you on any roll production problem.*

PACIFIC COAST SUPPLY COMPANY • PUBLIC SERVICE BUILDING, PORTLAND 4, ORE. • 260 CALIFORNIA ST., SAN FRANCISCO 19, CAL.



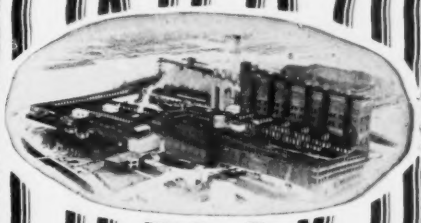
The Defibrator produces superior pulp for hardboard, insulating board, roofing felt, and corrugated board from all kinds of chipped wood or other fibrous ligno-cellulose materials such as bagasse or straw.

The Defibrator is now used by Paper Board Mills for dispersing asphalt and other non-fibrous components evenly throughout the waste paper stock. This results in a sheet of clean and uniform appearance.

AMERICAN DEFIBRATOR, INC. CHRYSLER BUILDING NEW YORK 17, N.Y.

West Coast: A. H. Lundberg Orpheum Building, Seattle, Wash.

SOUNDVIEW



High Grade

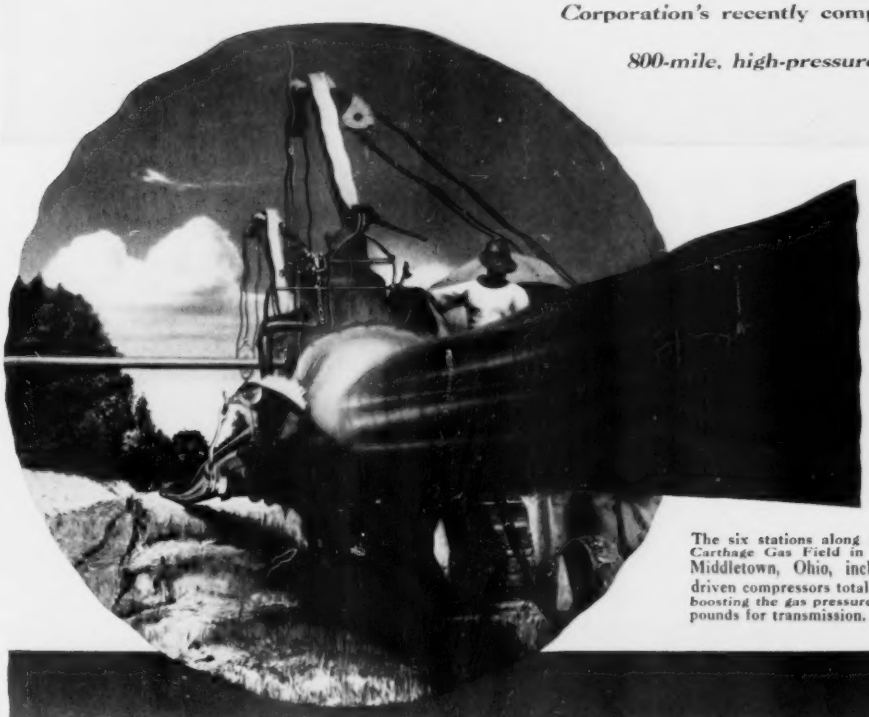
BLEACHED
SULPHITE PULP

SOUNDVIEW PULP COMPANY
EVERETT WASHINGTON

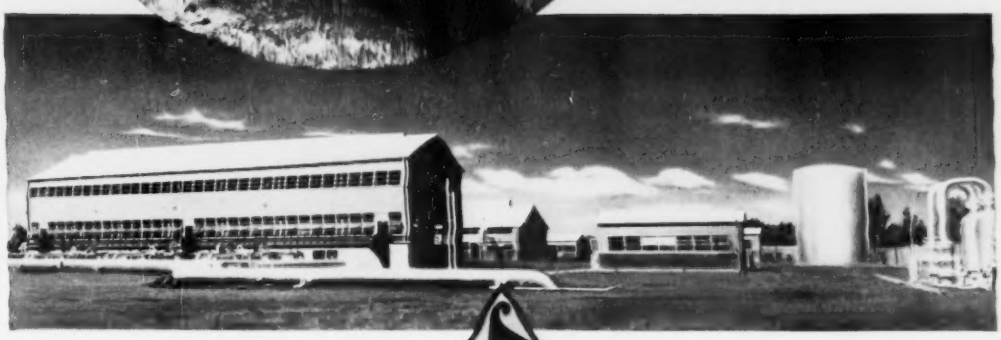
BEFORE
and
AFTER
••LODDING DOCTORS••

From East Texas to South Ohio

A current example of Stone & Webster Engineering Corporation's broad experience in design and construction for the natural gas industry is the six compressor stations on Texas Gas Transmission Corporation's recently completed 800-mile, high-pressure line.



The six stations along the line between Carthage Gas Field in East Texas and Middletown, Ohio, include gas engine driven compressors totalling 42,500 hp for boosting the gas pressure from 575 to 800 pounds for transmission.

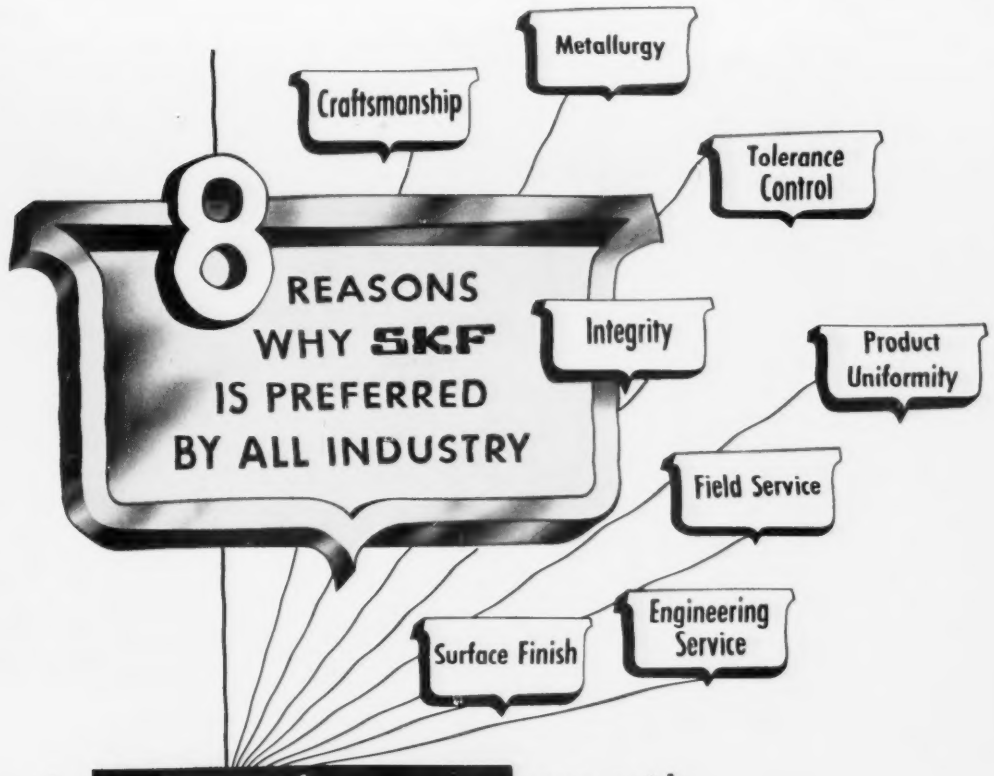


STONE & WEBSTER ENGINEERING CORPORATION

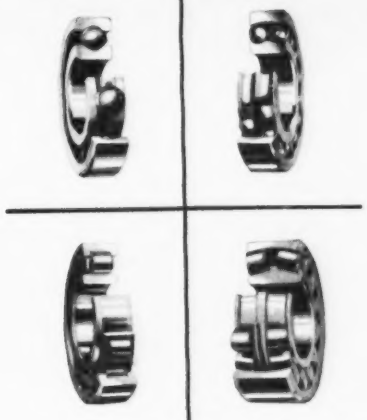
A SUBSIDIARY OF STONE & WEBSTER, INC.

Aerial view of the Puget Sound Pulp and Timber Company's plant on deep water at Bellingham, Washington. Although this company and its antecedents are credited with pioneering the wood pulp industry in the Pacific Northwest, its present plant is modern and up to date in all respects. It's production capacity is three hundred and sixty tons of unbleached sulphite pulp daily, plus extensive by-product output.

PUGET SOUND
PULP & TIMBER COMPANY
BELLINGHAM • WASHINGTON



make **preference for a reason** your guide when you specify ball and roller bearings



Over the years, products acquire a value above and beyond their mechanical qualities—a value proved by their *acceptance* throughout industry. This is especially true of SKF ball and roller bearings, preferred by all industry for one or more of eight good reasons. So when you specify, let preference be your guide. 7200

SKF
BALL AND ROLLER BEARINGS

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.
—manufacturers of SKF *and* HESS-BRIGHT *bearings.*

In high-rate water treatment units it's *performance* that counts!

Here's the kind of performance you can expect from—

DORRCO HYDRO-TREATORS

PLANT	JUNCTION CITY, KANSAS	LOCKLAND, OHIO	APPLETON, WISCONSIN	A CANADIAN PAPER CO.	T.V.A., SHEFFIELD, ALABAMA
OPERATION	SOFTENING	SOFTENING	SOFT. COLOR & TURB. REM.	COLOR REM.	ALGAE & COLOR REM.
NO. AND SIZE OF UNITS	2-35′ DIA.	1-31′ DIA.	1-45′ DIA.	2-80′ DIA.	1-50′ DIA.
CAP. PER UNIT, M.G.D.	1.5	1.0	3.1	10.0	3.0
GAL./SQ. FT./MIN.	1.08	.93	1.35	1.34	1.07
AVG. TURB. EFF., PPM	LESS THAN 0.2	5.0	2.4 to 4.7	3 to 5	4 to 7
SLUDGE—% SOLIDS	35 to 46.5	24.9 to 39.2	16.7	—	—

Here are the reasons for this performance...

Uniform Feed Distribution . . . feed is distributed within the sludge blanket by means of rotating arms which constantly agitate the blanket.

Concentration of Sludge Solids . . . sludge solids are collected and concentrated in a central thickening well and are positively removed to avoid the accumulation of a sludge blanket of excessive depth.

Positive Sludge Removal . . . sludge is removed from the entire tank floor positively and continuously by means of rakes attached to the rotating arms.

If you are investigating high-rate, up-flow type units, get *all* the facts before deciding. A Dorr engineer will gladly supply detailed figures and operating results . . . at no obligation.

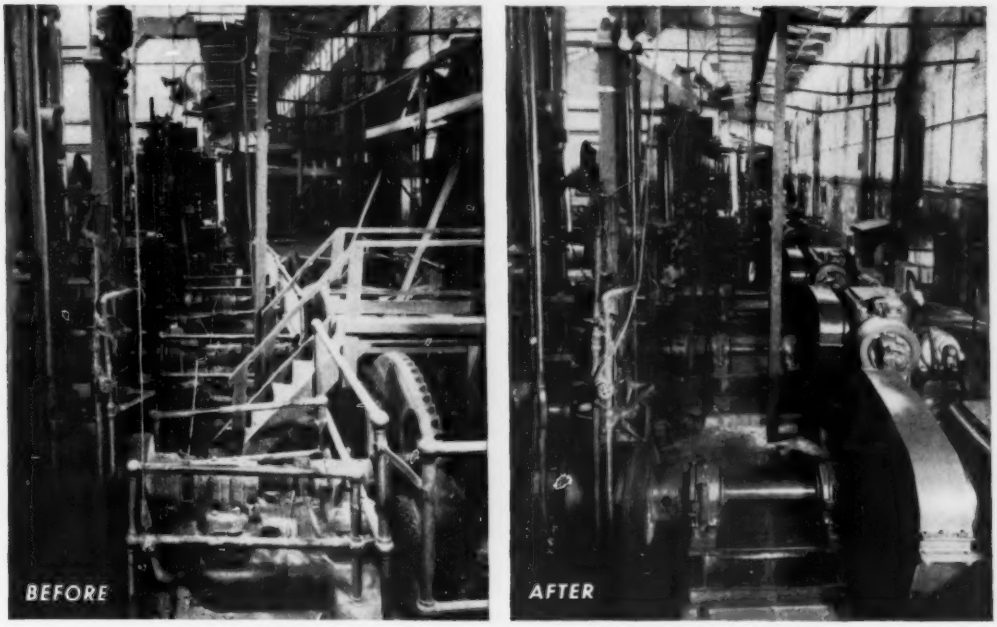
DORRCO

THE DORR COMPANY, ENGINEERS
BARRY PLACE, STAMFORD, CONN.
NEW YORK • ATLANTA • TORONTO
CHICAGO • DENVER • LOS ANGELES
RESEARCH AND TESTING LABORATORIES
WESTPORT, CONN.
SUGAR PROCESSING
PETREE & DORR DIVISION, STAMFORD, CONN.
ASSOCIATES AND REPRESENTATIVES
Dorr Technical Services and Equipment Are Also Available Through Associated Companies and Representatives in the Principal Cities of the World. Names and Addresses on Request.

RESEARCH ENGINEERING DORR EQUIPMENT

The improved

MOORE & WHITE *Syco* DRIVE



Photographs show a paper making set-up before and after installation of Moore & White Syco Drive. (Name of mill upon request.)

Primarily, this modern mechanical paper machine drive assures you:

- ★ ***Increased production from your present paper machines***
- ★ ***A more uniform, quality sheet at lower machine cost***

Scarcely less important are these vital profit and efficiency factors:

- ☆ ***A saving of up to 50 percent of usable floor space***
- ☆ ***Lowered power consumption***
- ☆ ***Sharply reduced maintenance costs***
- ☆ ***Greater safety to machine operators***
- ☆ ***Greater cleanliness that will promote good housekeeping***

Syco gives you a "clean" mill, free from overhead shafts, pulleys, idlers, countershafts and belts, guards for belts and gears, superstructure, ladders, and catwalks. There is no drive equipment above or below the floor level. Syco is easily installed and serviced by competent mechanics.

The compact Moore & White Syco Drive is simple in its expertly engineered design; precision-built and automatically lubricated for efficient, trouble-free, round-the-clock operation. It precisely synchronizes sectional speed, preserving uniform tension on the sheet at all times. Fingertip micro-adjustment insures uniform caliper, and the desired basis weight and finish throughout the run, at any selected setting. Breaks are fewer. Downtime is minimized. Wastage is cut way down.

Have a Moore & White sales engineer survey your installation and explain the greatly improved profit-potential of the Syco Drive in your operations. Your call involves no obligation.

The MOORE & WHITE Company

15TH STREET AND LEHIGH AVENUE • PHILADELPHIA 32, PA.

CUSTOM-BUILT MACHINES FOR MAKERS OF PAPER AND PAPERBOARD

Represented on the West Coast by Dan E. Charles Agency, 618 Jones Building, 1331 Third Avenue, Seattle 1, Washington

Check YOUR requirements

In a mill making high-quality ledger, one 40 H.P. High-Speed Refiner refines stock at 300 to 550 lbs. per hour (and replaces a 80-100 H.P. unit).

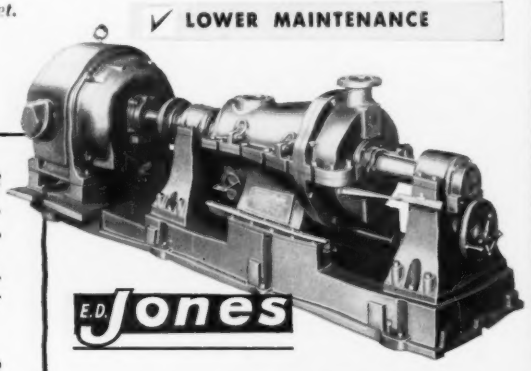
In another mill, two 60 H.P. High-Speed Refiners have replaced one 200 H.P. Jordan — and resulted in improved formation of the sheet.

Check your requirements; then write for Bulletin EDJ-1011A, or ask your Jones representative how the Jones High-Speed Refiner can produce savings for you.

- ✓ SAVE ON POWER
- ✓ IMPROVE STOCK CONTROL
- ✓ CUT OR HYDRATE
- ✓ REDUCE BEATING CYCLE
- ✓ LOWER MAINTENANCE

FEATURES
OF THE JONES HIGH-SPEED REFINER

- **Small Floor Space — 9′ 2⅛″, including motor base.**
- **Direct Drive — motor base is integral part of main casting.**
- **Sliding Shell — eliminates endwise motion of plug.**
- **Adjusting Mechanism — handwheel and scale simplify adjustment.**
- **Split Shell — makes inspection or refilling easy.**
- **Clean-out Doors — built-in sand and junk trap easily accessible.**



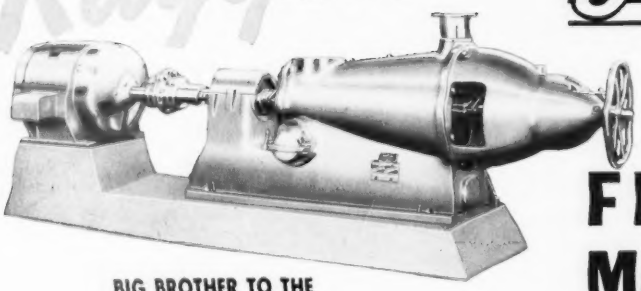
E.D. Jones

E. D. Jones & Sons Co., Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

Rugged

E.D. Jones



FIBRE-MASTER

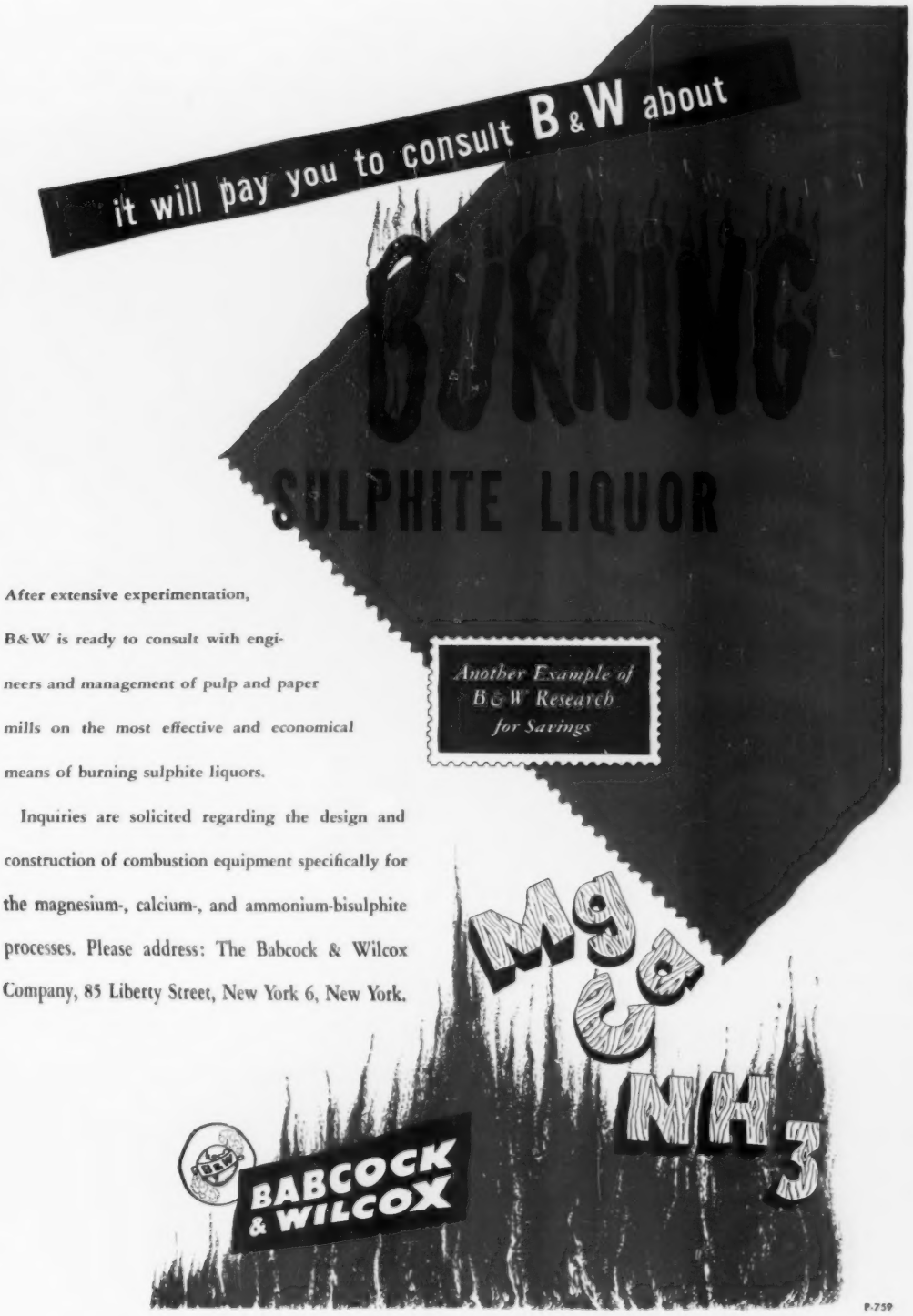
BIG BROTHER TO THE *HIGH-SPEED REFINER*

The rugged simplicity of design of the Jones *FIBRE-MASTER*, its high capacity, ease of operation and disassembly, already have earned widespread attention for this latest member of the Jones family of quality stock preparation machines.

The FIBRE-MASTER duplicates the improved stock control, the flexibility and economy, of the Jones High-Speed Refiner, with a capacity of more than twice the tonnage of the smaller machine. Ask your Jones representative, or write us direct for details.

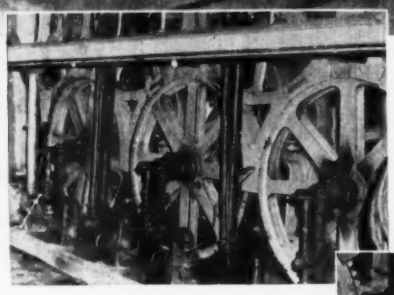
E. D. Jones & Sons Company, Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY


it will pay you to consult B&W about
BURNING
SULPHITE LIQUOR
After extensive experimentation, B&W is ready to consult with engineers and management of pulp and paper mills on the most effective and economical means of burning sulphite liquors.
Inquiries are solicited regarding the design and construction of combustion equipment specifically for the magnesium-, calcium-, and ammonium-bisulphite processes. Please address: The Babcock & Wilcox Company, 85 Liberty Street, New York 6, New York.
Another Example of B&W Research for Savings
Mg Ca NH3
BABCOCK & WILCOX
P-759

For ACCURATE *Dryer Gears . . .*
Specify Pacific-Western HOBBED *Gears*

A Pacific-Western gear expert is shown operating a precision hobbing machine which is generating the teeth of a dryer gear after it has been filled with laminated phenolic plastic segments bolted on to the gear center.



In the above photograph of a paper drying machine Pacific-Western dryer gears on the bottom mesh with the top row steel gears.

Pacific-Western dryer gears, driven by a precision-hobbed, hardened steel pinion, serve as initial drive units for two gear trains on paper drying machine.

EXPERIENCE has proven that high speed dryer gears must be of extreme accuracy to stand up under long periods of continuous paper drying machine operation without frequent breakdown and replacement. To insure such accuracy every Pacific-Western dryer gear filled with laminated phenolic plastic is hobbed—the best method for producing gears of this size and type.

Pioneered by Pacific-Western 27 years ago, these hobbed gears are more accurate in tooth spacing and tooth profile than gears made by indexing, or "single-cut", methods. A hobbed finish is superior to a finish resulting from a "single-cut" operation which leaves radial marks across the teeth.

With increased speed now being required of nearly all paper drying machines it is of interest to mill superintendents to know that Pacific-Western dryer gears are operating in many mills at a pitch line velocity of over 1600 feet per minute. Substantial savings in downtime as well as reductions in noise and vibration have been reported in numerous installations in U. S. and Canadian mills.

To provide fast customer service patterns are available at Pacific-Western plants for most standard paper machines. Call the plant or office nearest you for prompt quotation on new or replacement dryer gears for your mill.

AG77

WESTERN GEAR WORKS

Manufacturers of PACIFIC-WESTERN Gear Products

Pacific Gear & Tool Works

Plants at Seattle, San Francisco, Los Angeles

Representatives: Portland, Denver, Houston, Vancouver, B. C.

AGMA MEMBER

2246 Tons of New C-E Recovery Unit Capacity *ordered in 12 months*

In the 12-month period ending October 31st, 1950, leading pulp and paper mills in virtually every part of the country (see list) have selected C-E Recovery Units for new plants and expansion of existing facilities having an aggregate daily capacity of 2246 tons. Individual units range in capacity from 150 tons to the largest yet ordered. B-450

New York & Pennsylvania Co., Inc.
Johnsonburg, Pa.

Potlatch Forests, Inc.
Lewiston, Idaho

International Paper Company
Southern Kraft Division
Moss Point, Miss.

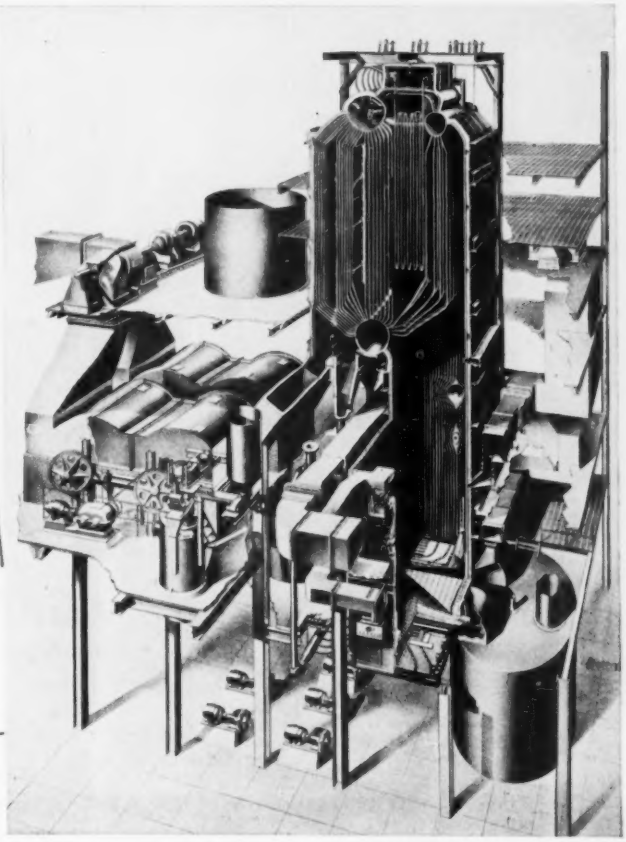
The Champion Paper & Fibre Co.
Canton, N. C.

Riegel-Carolina Corporation
Acme, N. C.

Mead Corporation
Chillicothe, Ohio

St. Regis Paper Company
Tacoma, Washington

Brown Corporation
La Tugue, Quebec, Canada



C-E

COMBUSTION ENGINEERING—SUPERHEATER, INC.

200 Madison Avenue • New York 16, N. Y.

PRODUCTS FOR THE PAPER INDUSTRY INCLUDE RECOVERY UNITS, STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT; ALSO PRESSURE VESSELS
Los Angeles—510 West 6th Street, San Francisco—116 New Montgomery Street; Seattle—Skinner Building

POWELL RIVER

UNBLEACHED SULPHITE PULP

★ STRENGTH
★ COLOR
★ SERVICE
★ DEPENDABLE SUPPLY

POWELL RIVER SALES COMPANY LIMITED

1204 STANDARD BUILDING · VANCOUVER, B. C.

"All motors are NOT alike!"

Check these 15 Reasons Why the RELIANCE Bearing Design is *the BEST one!*

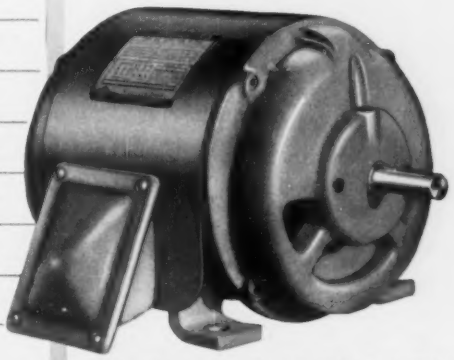
ONLY ONE MOTOR HAS ALL THESE DESIGN FEATURES:	DESIGN A Prelubricated cartridge—bearing mounted in bracket	DESIGN B Open bearing mounted in bracket	RELIANCE Double-shielded, prelubricated bearing mounted in bearing cap
Bearing sealed from dirt and other foreign material	YES	NO	YES
Enclosed bearing housing	NO	YES	YES
Bearing can be re-lubricated without being disassembled	NO	YES	YES
Motor can be re-greased without removing drain plug	**	NO	YES
Automatic grease re-lief to suit any lubri-cation system	NO	NO	YES
Protection against grease entering windings	YES	*YES	YES
Balls free of direct pressure during lubrication	YES	NO	YES
Bearing can be re-moved without dan-ger of distortion	NO	NO	YES
Reservoir to protect against under-greasing	NO	YES	YES
Standard commercial ball bearings	YES	YES	YES
Larger grease reserve than provided with any standard bearing	NO	YES	YES
Grease supply free of churning action	NO	NO	YES
Measuring unneces-sary to prevent overgreasing	NO	*YES	YES
Unnecessary to grease equally at each side of ball race	NO	YES	YES
Lubricant is retained in ball race	YES	NO	YES

** Means is not provided for relubrication of assembled motor.
*YES, if drain plug is removed.

The Reliance Pre-lubricated Bearing Design has all of the features vital to maximum motor life. Check these points in the chart at left. The performance of Reliance PRECISION-BUILT Motors in all industries and under all operating conditions has proved their value in long-wearing, trouble-free bearing design.

In most applications, Reliance PRECISION-BUILT Motors operate satisfactorily for years without relubrication. Where it is a practice to grease regularly or where operating conditions make it desirable . . . it is impossible to overgrease a Reliance Motor. Write for *new* Bulletin B-2201 for the "inside story" of the Reliance Pre-lubricated Bearing Design.

Reliance PRECISION-BUILT A-c. Motors from ¾ to 300 Hp.



Sales Representatives in Principal Cities

RELIANCE ELECTRIC AND ENGINEERING CO.

"All Motors are NOT Alike" • 1055 Ivanhoe Road, Cleveland 10, Ohio

FOR CLEANER, MORE USABLE PULPING CHIPS, WESTERN MILL OPERATORS FAVOR..

..THE

SUMNER 66" STANDARD CHIPPER

CURRENT INSTALLATIONS
66" STANDARD CHIPPER

COOS BAY PULP CORPORATION
Empire, Oregon

RAYONIER, INCORPORATED
Shelton, Washington

RAYONIER, INCORPORATED
Port Angeles, Washington

FOREST FIBER PRODUCTS CO.
Forest Grove, Oregon

SIMPSON LOGGING COMPANY
Shelton, Washington

PACIFIC LUMBER CO.
Scotia, California

COLUMBIA HUDSON LUMBER CO.
Bradwood, Oregon

EVERETT PULP & PAPER CO.
Everett, Washington

INTERNATIONAL PULPWOOD SUPPLY CO.
Port Alberni, B. C.

SANTIAM LUMBER CO.
Sweethome, Oregon

LONGVIEW FIBRE CO.
Longview, Washington

*OREGON-AMERICAN LBR. CO.
Vernonia, Oregon

*WAUNA LUMBER CO.
Wauna, Oregon

*To be installed early in 1951.

SUMNER Chippers have a long-proven reputation for consistently producing high quality, uniform-size chips which, as a result of numerous mill-sponsored tests, repeatedly show few cards and far less dust and slivers than chips produced by other competitive makes of Chippers.

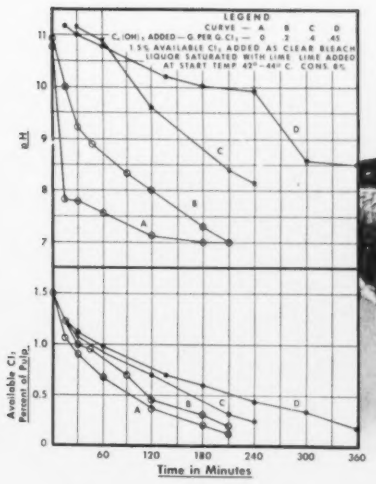
That's why most West Coast sawmills, acting on the recommendation of the pulp, paper, or board mill who will be buying the sawmill's chip output from bark free sawmill waste, are installing an ever-increasing number of SUMNER sawmill type Chippers.

The SUMNER sawmill type Chippers, a specialty group in the SUMNER Chipper series that range from the 36" Re-Chipper to the 175" Chipper — the world's largest, include the 53", 66" (illustrated above), and the 72" Chippers.

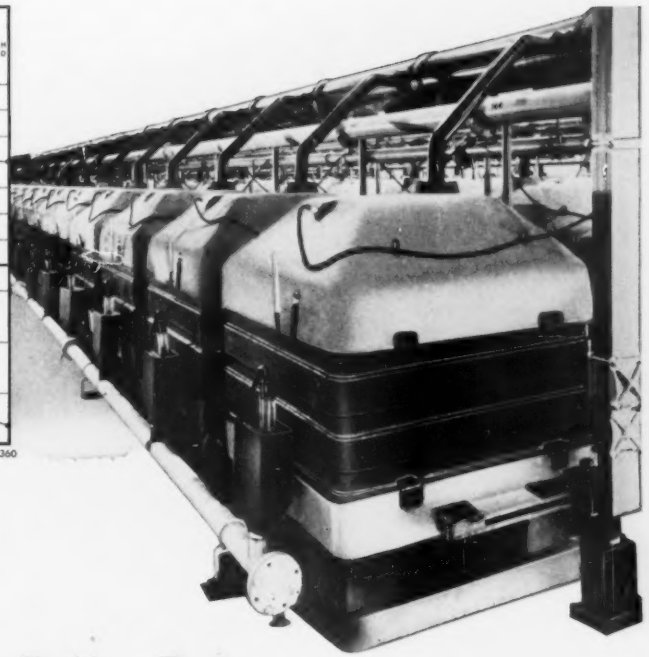
The popularity of the 66"-four or six knife Chipper, for example, can be vouched for by the increasing number of sawmills now using or about to install SUMNER 66" Chippers. This group includes such nationally known firms as the Stimson Lumber Company, Pacific Lumber Company, Simpson Logging Company, Columbia-Hudson Lumber Company, Santiam Lumber Company, Oregon-American Lumber Company, Wauna Lumber Company, and Valsetz Lumber Company. Add their combined chip output to that produced by other lumber industry leaders, such as Weyerhaeuser and the St. Paul & Tacoma Lumber Company who prefer the SUMNER 72"-eight knife Chipper because of its greater capacity, and you get an idea of the amazing volume of chips these mills are capable of producing daily with their SUMNER Chippers.

SUMNER is intensely proud of its part in this concrete example of better utilization and conservation of West Coast timber.

SUMNER IRON WORKS
Since 1892
EVERETT, WASHINGTON


LEGEND
CURVE — A B C D
C. (OH)2 ADDED — G. PER G. Cl2 — 0 2 4 4.5
1.5% AVAILABLE Cl2 ADDED AS CLEAR BLEACH LIQUOR SATURATED WITH LIME LIME ADDED AT START TEMP 42°–44° C. CONS 8%
pH
Available Cl2 Percent of Pulp
Time in Minutes
60 120 180 240 300 360

Effect of lime additions on pH and rate of chlorine consumption in a hypochlorite reaction with chlorinated sulfate pulp.



Starting Point for Better Paper

The important bleaching step, at many mills, is handled with high-purity chlorine produced in Hooker "S" Cells at Niagara Falls and Tacoma.

So efficient are the "S" cells, that their widespread use by licensees and by Hooker is responsible for nearly one-half of the chlorine produced in the United States.

When you use Hooker Chlorine you can be sure of uniformity that keeps your bleaching methods constant. What's more, you can depend upon properly conditioned and inspected tank cars to insure trouble-free unloading and handling. Technical Service by Hooker assures you of experienced advice on the efficient, safe handling of chlorine and other Hooker Chemicals.

For copies of interesting and informative papers on bleaching listed here, please write on your business letterhead.

Send for This Helpful Bleaching Data

Bulletin No.

201 Process and Equipment for Making Bleach Liquor for Use Without Settling

211 Chemistry of Bleaching Chemical Wood Pulps

214 What Do We Know About Bleaching?

236 Importance of pH and Catalysts in Bleaching Operations

242 Production and Use of Unsettled Bleach Liquor

243 Procedures and Brightness Grades in Bleaching Sulfate Pulps

From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY

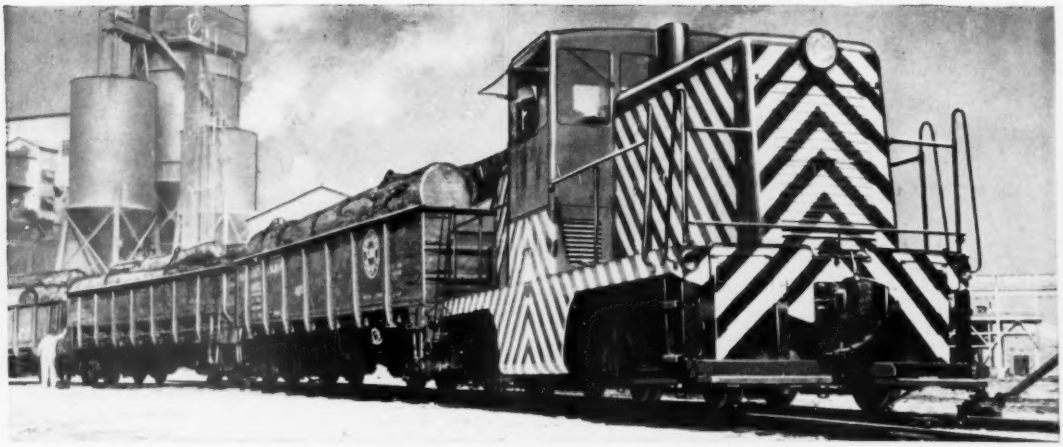
2 UNION STREET, NIAGARA FALLS, N. Y.

NEW YORK, N. Y. • WILMINGTON, CALIF. • TACOMA, WASH.

HOOKER CHEMICALS ®

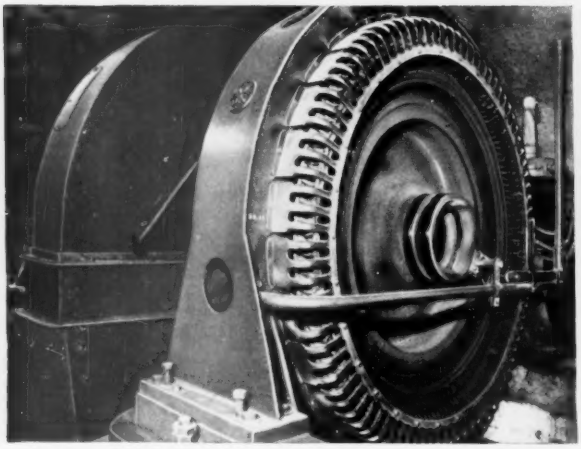
10-1711

SODIUM SULFIDE • SODIUM SULFHYDRATE • SODIUM BENZOATE • CAUSTIC SODA • MURIATIC ACID • PARADICHLOROBENZENE • CHLORINE



LOW-COST LOG-HAULING! You're off to a good start when logs are moved through your mill by G-E diesel-electric switching locomotives. Made in standard sizes from 25 to 95 tons for industrial use, they have 90 to 95 per cent availability for service, need only a one-man crew, and cut fuel costs materially. Because they emit no cinders or smoke, fire hazards around the wood yard are lessened and greater cleanliness is maintained. Here, a 65-ton G-E diesel-electric switcher feeds a string of loaded cars into a California pulp mill.

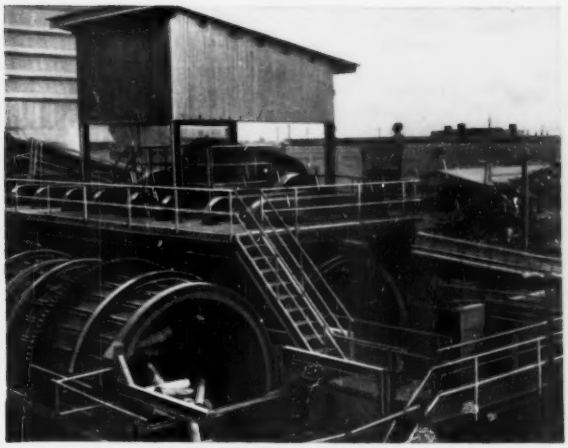
Less downtime...



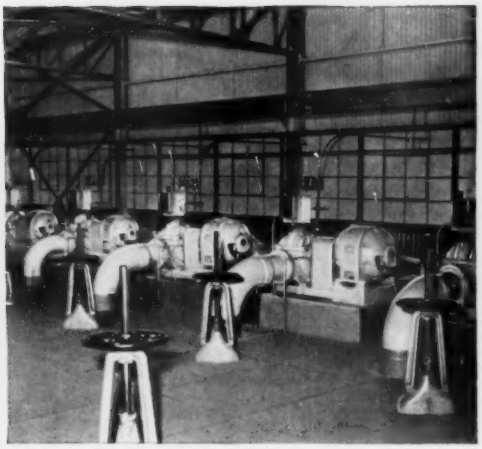
MORE CHIPS IN LESS TIME! Providing high service continuity in wood-chipper service, G-E synchronous motors hold their speed regardless of log size, are sturdily built to withstand shock loads. Here, a G-E 600-hp 327-rpm 2200-volt synchronous motor drives a chipper in a northwestern pulp mill.

COMPLETE MOTOR PROTECTION! For motors up to 5000 volts driving chippers, barkers, etc., G-E Limitamp controllers provide centralized control and short-circuit protection, preventing extensive equipment damage, reducing costly shutdowns.

GENERAL ELECTRIC

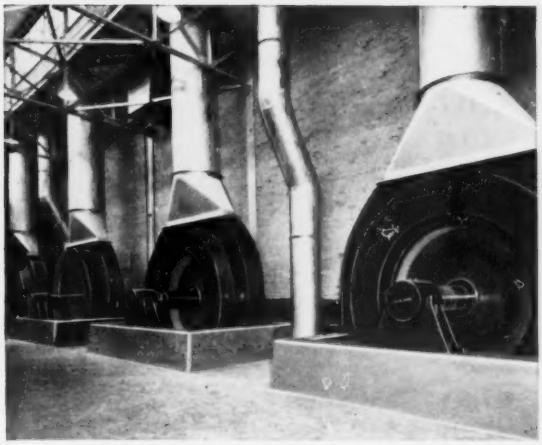


HIGH-TONNAGE BARKING! Whether you use mechanical or hydraulic barkers, the right G-E motor can be depended on to meet your needs, for years of performance in high-tonnage duty. Here, a G-E 150-hp 2300-volt splashproof motor (under canopy) drives two mechanical barkers in a southern pulp mill.



LOW-MAINTENANCE PUMPING! On pumps in all types of pulp mills, years of experience have proved G-E motors need but little upkeep, as in this installation in a western mill, where G-E 100- and 60-hp open (dripproof) motors drive centrifugal pumps in its river pump house.

from logs to laps!



HIGH-EFFICIENCY GRINDING! In this Southern newsprint mill, four G-E synchronous motors rated 4000 hp, 6900 volts, 200 rpm each, drive grinders on other side of wall. Highly efficient, G-E synchronous motors also maintain constant speed regardless of whether the grinder pockets are partly or completely filled.

G-E equipment for pulp mills—engineered to your needs by skilled industry specialists—helps increase production continuity for greater output of uniform-quality pulp.

Every step of the way in pulp-making—from raw logs to finished pulp—General Electric co-ordinated electric equipment can help you boost production continuity, assure pulp uniformity, and cut costs as well.

Here's why: Years of experience in meeting pulp-mill requirements has enabled General Electric to develop a wide range of dependable apparatus. To make doubly sure your selection from this range is correct, your G-E sales engineer and an industry specialist, who know pulp-mill practice and needs, team up to serve you.

With their pooled knowledge to draw on, you're certain to fill your needs in a practical, economical way. Let your G-E representative with his skilled engineering assistance work with you on your pulp-mill modernization plans.

Apparatus Dept., General Electric Company, Schenectady 5, N. Y.

GE Co-ordinated Equipment

—to cut costs in pulp preparation

Season's Greetings

In commencing the new year, we think with gratitude of our old friends whose faith has been a bulwark. Their continuing confidence is a heritage of inestimable value. We also greet new friends with the firm belief that time alone is necessary to make them old frienas. . . To all in the Pulp and Paper *Industry, our best wishes for a very*

HAPPY NEW YEAR

GOTTESMAN & COMPANY, Inc.

PULP & PAPER
"The Cellulose Age"
PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY

A MILLER FREEMAN PUBLICATION

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Paper and Public Health

A report entitled "Microbiological Survey of the Pulp and Paper Industry" has been issued by the American Paper & Pulp Association and copies sent to all pulp and paper manufacturers.

This is a very important report, conducted in packaging papers by the Institute in Appleton at the behest of the Association. It is proof positive that paper as a packaging medium has no adverse effects upon public health, but instead has contributed greatly to the improvement of that public health.

In our December 1949 issue, our lead editorial pointed out that the survey, as it had progressed up to that point, had not uncovered a single paper sample carrying a single disease-producing germ. This statement was still true when the survey ended with examination of 4,076 paper samples in 37 mills. In fact, the heat and other factors in the papermaking process destroy germs.

We said a year ago—and we repeat again—this worthwhile survey by the APPA should surely stimulate the development of wider markets for paper.

Protect Labor-Management Achievements

There are many cooperative enterprises of labor and management in the pulp and paper industry these days which would have been utterly impossible to achieve in past generations. As a man prominent in labor affairs said recently: "There were no good old days—there were just evil old days—the good days are here now."

It has taken a great deal of tact, consideration of conflicting viewpoints, common courtesy and a fundamental realization that we are all after pretty much the same things in life to have made possible the joint achievements of labor and management in this industry in particular.

And so we suggest it was most unfortunate at a recent pulp and paper industry joint labor-management safety meeting, when one of the speakers used that platform to launch into advocacy of government socialized medicine. This is a highly controversial national political issue, with sharp differences of opinion cutting through the ranks of not only labor and management, but all other segments of the population. It was both out of place and out of order at a safety meeting which was trying to further cooperation of labor and management without government interference. The degree of cooperation which has so far been achieved in this industry has set an example for many others and is far too precious an accomplishment to have it imperiled by the thoughtless injection of a political issue of such disturbing character.

Wisconsin Industry's Cooperation

The sulfite industry of Wisconsin, under the leadership of Joe Conway, deserves plenty of credit for having stuck to its guns in efforts to find a way out of the waste liquor problem. It has been far-sighted enough to stick like glue to a scientific approach to, and to avoid all political approaches or diversions.

Its fidelity to this principle has paid off in very high praise from Theodore F. Wisniewski, director of the state committee on water pollution. In a report to Walter J. Kohler, Jr., Wisconsin's Governor-elect, Mr. Wisniewski said one of the outstanding things about the Wisconsin program has been "the tremendous voluntary cooperation of industry."

Look South Before You Say "First"

When it comes to kraft pulping, it's mighty dangerous to say that anything was done first in some mill or other, without checking and double-checking on the Southern pulp and paper industry. There are very few new developments that haven't been tried out in one or another of the 50 or so mills from Virginia to West Texas.

Although quite a few things done in the South, or being done there right now, are hush-hush, there is more of a spirit for sharing new information in the Dixie mills than was the case a few years ago. A few Southern mills are outstanding in this respect. With two of our own editors frequently visiting Southern mills in some dozen states, PULP & PAPER readers have had plenty of evidences in the pages of this magazine of that new spirit.

We have slipped on occasions, ourselves, in unwittingly giving northern mills credit sometimes for new achievements which were done long before in the South. We are reminded at the moment, however, of recent errors that have appeared in other magazines, and have been quite widely broadcast. Of course, we would not point the finger at anyone in these instances, the error having been so generally made. For instance, the widely publicized error that the first 9 pt. corrugated was made 100% from coniferous wood in a new western kraft mill. And the report that a Canadian mill was first on the continent to use a chlorine dioxide bleach for kraft pulp.

Quality kraft papers (in some cases, papers it was not believed could be made with kraft), record high speeds on certain stock, new refining processes, etc.—in many such cases the South has been the unheralded pioneer and industry leader.

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FIRST PUBLISHED KRAFT INDUSTRY REPORT

DIGESTER CORROSION

By Francis W. Flynn
Western Member of TAPPI's Digester Corrosion Committee and
Technical Assistant to Kraft Mill Supt., Crown Zellerbach Corp.,
Camas, Wash.

The subject of digester corrosion in the kraft industry has, in recent years, become of paramount importance. Fortunately for the industry, the importance of the interchange of experiences and ideas was quickly seen by management, and immediately following the National TAPPI Convention of Feb. 1950, a subcommittee of the TAPPI Chemical Engineering Committee, titled Digester Corrosion Subcommittee, was formed. It was the intent that this committee be made up of representatives of the three major kraft producing areas, namely, the South, Middle West, and Far West, so that any particular area problem would receive its share of study.

Since its formation the committee has held two meetings, the first in St. Louis and the second at the annual National TAPPI Engineering Conference in Cincinnati. At the first meeting the conclusions arrived at were that no one mill had the answer to the corrosion problem at this time and in consideration of the complexity of the problem, the committee decided that a program be established to obtain further data and to correlate the data in the hope that something conclusive could be determined.

The plan of the committee was as follows:

1. Prepare and submit questionnaire to mills covering experience, operating procedures, etc.
2. Check what Canadian and European technical associations are doing.
3. Arrange discussions with fabricators.
4. After correlating questionnaire consider bringing in a national association of corrosion engineers.
5. Arrange for literature survey regarding subject of digester corrosion.
6. Consider the use of other than metallic linings.
7. Consider cathodic protection.

Swedish Conclusions Questioned

Since the first meeting a translation of a late Swedish publication regarding the subject of digester corrosion has been published. The conclusions of this article were generally the experience of the industry in the U. S. with the exception of a statement that "by adopting stainless steel, corrosion can be eliminated." Swedish experience, it appears, has been mostly in the laboratory and with test specimens in digesters. Unfortunately, as has been our own experience, digester test specimens are not a criteria of results that may be experienced with the same materials in lined digesters.

Report on Canadian Meeting

The Canadian Technical Association has been contacted by the secretary of the Digester Corrosion Subcommittee and he attended a meeting where plans were formulated for an attack on the corrosion problem in Canadian kraft mills. His report summarized the meeting as follows:

1. Canadian mills are experiencing corrosion problems similar to U. S. mills.
2. Present knowledge of the problem is insufficient for proper equipment specifications.
3. Investigation must be complete and thorough and to insure complete and comparable data, it was felt necessary to have a field force travel from mill to mill.
4. The financial backing for the project would be prorated to all the alkaline pulping mills in Canada.

As noted above the Canadian project differs from that of the U. S. in that it has been suggested that a team of qualified men travel to all the alkaline pulping mills in Canada to obtain the information desired while the project in the U. S. request only a return of information on the questionnaire. At the same time analyses of specimens from various Canadian mills are to be analyzed at a central laboratory. The Canadian committee is planning to appropriate $200,000 for the study of digester corrosion.

The activities of the Digester Corrosion Subcommittee in connection with the Engineering Conference held in Cincinnati were a progress report presented at the general session of the Engineering Division and a three-hour round-table discussion at which approximately 50 people were in attendance.

Since there had been a delay in distributing the questionnaire, very few had been returned and it was not possible at that time to report any information so collected. The chairman did, however, report of the meeting with the Canadian Technical Association and that progress was being made on the literature survey.

"UP IN ARMS" OVER CORROSION—MILLS WANT ANSWER IN 1951

The kraft pulp industries of the U. S. and Canada are spending millions of dollars in separate, individual commercial plant scale investigations of digester corrosion. The only certainty right now about these investigations is their cost.

Is it any wonder that the great kraft industry of the South is "up in arms" over this problem? That everywhere, far-sighted leaders are pressing for more sharing of information, more cooperative effort to get the answer That worried leaders are saying *"we must have an answer in the next year?"*

This paper, which covers progress of joint efforts in both countries to date—also reports highlights of individual investigations to date in the South, Midwest and elsewhere —was presented Dec. 5 at the Coast Superintendents meeting in Longview, Wash.

Pre-hydrolysis in the South, uses of stronger liquors everywhere, greater purification of liquors, other changes throughout the kraft process to the revamping of recovery cycles —all these process changes have intensified the corrosion problem.

A large mill in the Southeast—a mill which has been a pioneer in showing high industry citizenship by sharing of information—is installing *seven different types of linings or digester construction in 17 digesters.* This may bring much new information.

Speakers at the Longview meeting remarked on the use of Inconel linings in upper portions of new digesters at Crown Z's Port Townsend, Wash., mill and St. Regis's mill at Tacoma. One superintendent said a first three months' inspection showed considerable coating and some bare spots, but said it was too early to draw any conclusions. Time will tell if Inconel is the answer.

The mill manager of one of the biggest South Central mills said he would go to 2-inch mild steel in new digesters but would not order any stainless steel or special linings at present because the kraft process is changing too rapidly—he preferred to wait and see. But he is cagey, too, for he is in a position to line his thick digesters when desired.

The Longview discussion brought out that a Middle South mill as well as St. Regis at Tacoma have heat-treated new partial Inconel lined digesters to avoid caustic embrittlement, but a Wisconsin mill had not done so. What will happen underneath the linings if this is not done? asked speakers.

Efforts to coat inside of digesters with various resins have not proved very practical, it was said. One speaker said it cannot be applied to large digesters.

Pulp mill men at Longview said there is a difficult-to-detect difference in the lasting qualities of available mild steel today as compared with some years ago. This has pointed up the search for new linings or treatment methods.

This first published report presented by PULP & PAPER presents much new important information. *(Next month—Longview Meeting's discussion of Douglas fir use.)*

One Southern Mill Plans Tests on 17 Digesters

At the round-table discussion the corrosion experience of one of the large Southern kraft mills was reviewed and then the specifications for 17 new or replacement digesters either in service or on order were listed. The first three replacements were of A-212 (70,000 psi) steel. The fourth was a 20% stainless clad with Type 316 columbium stabilized, with A-212 backing—one inch total thickness. The fifth was an oversized digester lined with 3 in. carbon brick and 1⅜ inch metal thickness. The next three digesters are oversize with A-285 grade C steel, in which carbon brick linings may be installed at a future date. The next five digesters are to be of 20% Inconel clad, one inch total thickness. The last four digesters are to be of A-285 grade B steel, with 2 in. thickness which allows 1¼ inch for corrosion. The first two of these digesters were to be of rimmed steel with a lower carbon content in an attempt to duplicate the steel of the old Pintsch digesters. The cost of these replacements is considerable, with the Inconel clad at $56,000 each and 316 columbium at $43,000, and the results of this wholesale experimenting on a plant scale will be of considerable value to the entire industry.

Southern Mills' Experiences

The experience of most of the Southern mills is generally the same in that little or no corrosion was experienced until recent years. The increased corrosion rate has been generally attributed to several factors:

1. High sulfidity.
2. Increased efficiency and reduced make-up in the recovery process including both salt cake and lime.

As concerns sulfidity, corrosion is present in all operating ranges so that if kraft rather than soda pulp is desired, this factor cannot be changed.

One Southern mill for a six month period operated their furnaces at a reduced efficiency to increase the sodium sulfate content of the liquor on the theory that increased sulfate content of the liquor might inhibit corrosion. However, such was not the case and normal recovery operation was resumed. This same mill has for some time added sodium silicate to the digesters (5 gals. per digester) in an attempt to build up a protective scale. Although the silicate addition has reduced the corrosion rate, they are not entirely satisfied with the results. Quite recently they have started an addition of china clay to the black liquor before the furnace in an attempt to produce both an alumina and silicon scale in the digesters; the results of this work are not yet evident.

Other Reports

A representative of one of the Midwest kraft mills reviewed their work in lining a rotary digester with strips of Inconel. The vessel was lined with ⅛ inch plate in 18 in. wide strips arranged horizontally and plug welded with ⅝ inch diameter holes. To date, only the cylindrical section of the vessel has been lined at a cost of approximately $10,000. The fact that no stress relieving was done after welding caused considerable unfavorable comment from one of the metallurgists present.

A representative of Stebbins Engineering & Mfg. Co. spoke briefly on carbon brick linings in alkaline digesters. He stated that early troubles with carbon brick linings were chiefly due to the fact that carbon brick has only one-sixth of the thermal coefficient expansion of steel. Since the war, a brick has been developed that has one-third the coefficient of steel. It was also stated that with attention given to maintaining the linings equal to that given sulfite digesters, a carbon brick lining could be expected to last ten to twelve years.

The use of the Audigauge for determining digester shell thickness was recommended to the group as being the most versatile instrument on the market. The thickness determinations with this instrument have been accepted by insurance companies.

The experience of mills using the various alloy linings, namely 316, 347 and 405 stainless steels has left much to be desired in the way of digester linings. Whether or not Inconel is the answer to an entirely satisfactory lining is still to be determined, but by the cooperation between the mills in the industry, much can be learned and mistakes of the past will not be repeated.

Promotions in West Va. Top Administrative Posts

Robert L. Bentley, assistant controller in the New York office of West Virginia Pulp & Paper, has been appointed assistant manager of the Covington, Va., mill of that company, under the new mill manager there, E. Crawley Williams.

Thomas M. McCrary, legal representative at the Charleston, S. C., mill, has been appointed to the newly created position of coordinator of industrial relations for the company's four mills in the Appalachian region—Covington (his new headquarters), Luke, Md., Williamsburg, Pa., and Tyrone, Pa.

They are both successors to Raymond C. Crush, now retiring, who was both assistant manager for administration at Covington and chief company negotiator with unions at Covington, Luke and Williamsburg. Mr. McCrary's duties are somewhat extended. He will coordinate personnel departments at four mills named above. Mr. Crush has agreed to remain through July 1 on union matters, when Mr. McCrary takes over as company spokesman.

Edwards; Hargreaves Made Mill Managers

R. R. EDWARDS, former assistant manager of Pacific Mills, Ltd., Ocean Falls, B.C., who had been named resident manager at Duncan Bay for the new Elk Falls Co., instead will remain at Ocean Falls as resident manager.

THOMAS HARGREAVES, who has been acting resident engineer for the Elk Falls Co., will become resident manager there.

F. O. BOYLON and *R. R. FERGUSON* have been named assistant managers at Ocean Falls.

Gen. Supt. at Potlatch

O. B. Smith has been appointed general superintendent of the new Potlatch Forests, Inc., mill, which started up last month at Lewiston, Ida., according to William P. Davis, PFI president and general manager. Roland Wilber is pulp and paper division manager.

Mr. Smith was an engineer on construction of several International mills in the South and was resident engineer during construction at Lewiston. Ollie Duncan, from Crown Zellerbach, and C. B. Christensen, from Weyerhaeuser, are paper and pulp superintendents, respectively.

Everett Wallace was promoted to chief electrician and L. Kenneth Ross to power superintendent at Lewiston.

Marathon Opening New Plant in Washington

Marathon Corp. is opening in early 1951 a food carton converting plant at Sunnyside, in the important Yakima Valley farm belt of eastern Washington, according to President W. L. Keady.

This will be its third such plant; others are at Menasha and Wausau, Wis. John W. Reimer, Menasha superintendent, will be resident manager at Sunnyside.

Consolidated Plans Liquor Burning Plant at Appleton

President Stanton Mead of Consolidated told Wisconsin's Water Pollution Committee, Dec. 5, his company will install evaporators and reconstruct combustion chambers of two boilers at its Interlake mill, Appleton, Wis., for commercial scale burning of sulfite liquor for energy. In a trial at Appleton he said one boiler ran exclusively on sulfite liquor for 20 hours, exhausting new liquor storage facilities there. See technical paper on Consolidated's experimental burning at Interlake on Page 66 of this issue.

MAX HOFFMAN, 61, machinist at the Institute of Paper Chemistry, Appleton, Wis., died Dec. 2.

DON FELTHOUS, plant engineer of the Pulp Div., Longview Pulp Co., Longview, Wash., has purchased a new home at 1726 Kessler Boulevard in Longview.

FRED GREEN, representative for Nash Engineering, South Norwalk, Conn., recently went west for an extended tour, from Los Angeles to Ocean Fall, B. C., and one of his important contacts was in connection with installation of what is said to be the largest Nash vacuum pump ever made on a machine at the Crown Z mill in Port Angeles, Wash. His wife, Susan, accompanied him.

Pete Heuer Becomes Gen. Mgr. at A.P.W. Mill

J. H. "Pete" Heuer, technical director for St. Regis Paper Co., Deferiet, N .Y., and manager at the Norfolk, N. Y., mill before it was sold, has resigned from that company to accept a position as vice president and general manager of A.P.W. Products Co., Inc., Albany, N. Y., whose mill there with nine paper machines makes 115 tons a day of tissue and toweling.

S. W. MEAD HEADS CONSOLIDATED

"G. W." Pioneered Many Industry Developments

GEORGE W. MEAD (left), pioneer of many developments in paper industry, who has retired as President of Consolidated Water Power & Paper, succeeded by his eldest son, STANTON W. MEAD (right).

George Wilson Mead, who in 1950 at the age of 80 was one of the most active and also one of the most important presidents of a pulp and paper company on the continent, has now turned over the reins of Consolidated Water Power & Paper Co. to his eldest son, Stanton W. Mead. Walter L. Mead, a younger son, continues in Chicago as vice president and director of sales.

The elder Mead, who lives on Belle Island in the Wisconsin River near the main offices of the company in Wisconsin Rapids, decided finally to step down from the presidency after suffering an illness Sept. 13. He is convalescing this winter at Miami Beach, Fla., but anyone who knows "G. W." will tell you he is certainly going to continue to keep an alert, keen eye on the business.

To Stanton Mead, who has been vice president in charge of manufacturing, falls the task of leadership for an organization of five pulp and paper mills, factors in the sulfite pulp, waxed papers and board market, but most of all, as the leading producer in the entire world of machine-coated papers for the "slick-paper" magazines. Stanton Mead already was serving as president of the subsidiary Consolidated Water Power Co., which has built seven dams on the Wisconsin River and thereby has set an outstanding example of private enterprise development of a great waterway. With Consolidated's extensive tree farms, Stanton has also been an outstanding leader in Wisconsin's "Trees for Tomorrow" organization.

Mead Was a Pioneer

G. W. Mead moved to Wisconsin as a young man from Rockford, Ill., where he had been a school teacher. Entering the paper industry at "The Rapids," he very early in his career established a reputation for being a pioneer. With William B. Thiele, who had been with General Electric, as his chief engineer, he pioneered in the extension and modern-day development of electrification of the paper industry, saving many thousands of dollars in coal. He pioneered pumping pulp 4 miles from Wisconsin Rapids to Biron. In the mid-thirties, he envisaged the need for high speed manufacture of coated papers to meet the growing circulations of the "slick paper" magazines and the new high speed printing presses, and he engaged Peter J. Massie to develop an on-the-machine coating process at "The Rapids." Again during the war, he sponsored development of Consoweld, a wood-pulp plastic building material. More recently, he approved and sponsored this company's building of the first semichemical neutral sulfite process for book paper furnish, making it possible to use vast stands of aspen, long regarded as virtually a worthless weed tree in Wisconsin. Just recently, as reported elsewhere in this issue, Mr. Mead backed a pioneer venture in the successful burning of sulfite liquor without use of any auxiliary fuel.

Total papermaking capacity of the Consolidated mills is listed as 800 tons a day. All but about 100 of this is in book and magazine coated paper, made at Wisconsin Rapids, Wisconsin River and the Biron mills. Waxed and tissue are made at Stevens Point, and board at "The Rapids." Sulfite pulp is made at Appleton and Wisconsin Rapids and groundwood is made at three mills.

A Monument to His Leadership

Fitting memorial to the career of "G. W." are the recent completion of the Castle Rock dam, which — with all the dams he has built before it—is said to make the Wisconsin the "hardest working" river in the world, with the possible exception of the Connecticut. Another monument in which he takes justified pride, is the new No. 4 coated paper machine, a 135-in. Rice Barton, added at Biron in 1946 and the entire new paper mill serving it—one of the finest streamlined and most efficiently engineered new mills in the country. Earlier that year the newly purchased Wisconsin River mill was completely rebuilt for coating paper.

Mr. Thiele has succeeded "G. W." as a director on the Consolidated Water Power Co. Mr. Thiele has been with Consolidated about 28 years.

Has Six Grandchildren

The elder Mr. Mead steps down from the helm as one grandson, as well as others of his family, are preparing to enter papermaking. His three children each have three children of their own. He was a witness when Stanton and Dorothy Mead's eldest boy, George W. II, was awarded his degree at Yale in June and is now studying for a master's at the Institute of Paper Chemistry. He is married. In this family "G. W." has two more grandchildren—Gilbert, at Yale, class of '52, and Mary, in high school.

Walter and Louise Mead have three children, Sally, married this year to a young man in paper business in Milwaukee; Walter, Jr., a student at Yale, and a younger daughter.

WILLIAM B. THIELE (left), Chief Engineer and right hand man to "G. W." in many big ventures, has become Director in Consolidated Water Power. WARREN E. BEADLE (right), Manager of the Biron Division, was in charge in starting up the ultra-modern new No. 4 Mill there which was last of long line of machines put in under G. W. Mead's direction.

"G. W.'s" daughter, Emily, and her husband, Henry Baldwin, assistant to Stanton in charge of production in Consolidated, also have three children—Ruth and Sandy, daughters, and Harry, a boy just in his teens.

So, the Mead tradition seems in a fair way toward continuing a long time in Consolidated.

Fred Crossman Dies

A. Fred Crossman, widely known as president of The Lindsay Wire Weaving Co., of Cleveland, died suddenly after attending the Navy-Notre Dame game Nov. 4. He was 59. Having joined Lindsay in 1920, Mr. Crossman was elected president in 1932, upon the death of the founder, Hamilton Lindsay. In addition to his many industrial relationships, Fred Crossman's activities were unusually broad in their scope.

Gaylord Directors

Gaylord Container Corp. headquarters, St. Louis, elected three new directors at its recent board meeting: Charles W. Goodyear, Jr., Bogalusa, La.; George F. Goodyear, Buffalo, N. Y., and Gilbert R. Pirrung, Bainbridge, Ga.

CALENDAR OF MEETINGS

JOINT Meeting of Michigan Supts. and TAPPI, Kalamazoo, Mich.—Jan. 18

CANADIAN Pulp and Paper Association, Mount Royal Hotel, Montreal—Jan. 24, 25, 26

TAPPI Engineering—Pacific Coast—Tacoma, Wash.—Feb. 6.

PAPER WEEK—APPA and Salesmen at Waldorf-Astoria, TAPPI at Commodore Hotel—Feb. 19-23.

PACKAGING—National Exposition, Auditorium, Atlantic City, N. J.—April 17-20.

SUPTS.—N. Y.-Canadian, Saranac Inn, Saranac Lake, N. Y.—Sept. 6-8.

SUPTS.—National Convention—Multnomah Hotel, Portland, Ore.—June 24-29.

SALESMEN—Paper Industry—Midston House, New York City—Every Mon. noon

CONTROLS AND PULP AND PAPER

Pulp Cuts Feared; Metals, Chemicals Short

To the U. S. and Canadian industry the winter reverses in Korea made plainer that the clock had been set ahead. Whatever turn events took in early 1951, trends firmly outlined toward the end of 1950 seemed certain to hold. Most were accelerations of changes visible from the first phase of Korea and reported in PULP & PAPER the last few months. Erstwhile cautious observers were ready to call the fiber shortage "real" and likely to become more so. Jobbers (still buying frantically) stopped talking a Spring slump. Indications of severe reductions on Scandinavian pulp imports were verified; they range in neighborhood of 40% to 50%, depending on grade and mill. Pulp was sure to follow paper upward, but not to the heights the 1951 consumer abroad finds reasonable. A French mill operator visiting New York in December found the U. S. price on a bleached grade cheap, and could hardly be convinced the buyers did not intend to re-sell! Some grades were bringing $300 a ton in England.

It was clear that U. S. policy would indicate the foreign market should be served even in a tight domestic situation, but as yet no mill had even tentatively planned more than its ordinary export tonnage. If the Consultative Economic Assembly (approximately the foreign edition of ECA) has its way, there will be a joint purchasing authority anyhow; and if so, foreign prices might be held down. At any rate PULP & PAPER learned authoritatively that pulp and paper were among the resources discussed at the Strasbourg meeting in November; and at this meeting were representatives of the industry from several countries, but *not* the U. S. It was being suggested last month that representatives of U. S. and Canada attend further sessions, if any. Economic Consultative is part of European Defense plan.

That several non-integrated mill buyers feared pulp cut-backs was reflected in a confidential news letter from American Pulp Consumers to its membership. Parts of this letter indicated alarm over the possibility of competing for supply with foreign mills, expressed the belief that projected cut-backs were largely with overseas market in view, and suggested that members might report cut-backs to the National Production Authority, should they become general or specifically damaging to the consumer mill involved.

Karl Clauson, secretary-manager of the consumer group, had issued the letter Nov. 15 and had not at that time returned from a far West trip.

At least one non-integrated mill, PULP & PAPER learned on good authority, took advice hinted by the American Pulp Consumers group in November and advised NPA that a pulp supplier had warned of cut-backs this year. NPA, says the same advised in general that individual mill relations are beyond its jurisdiction.

Mr. Clauson stated he could not comment in detail on the membership newsletter, but said his information did not apply to all mills of any one section. Asked as to his own guess (nobody at this writing can intelligently estimate it) as to government requirements percentage-wise to total production, Mr. Clauson said he could not guess. That he felt price might also be involved was indicated in Mr. Clauson's statement of APC's belief that "the raw fibers ought to be kept at home as much as possible" and that "future price is not our concern in the matter."

On a recent New England trip a PULP & PAPER editor found those with acceptable pulp reclaiming and de-inking processes expecting a steady future market, even in a more normal pulp market. One inventor had reopened a defunct Massachusetts mill with two of his own machines, planned several more operations.

Supply and not price was going to be the 64-ruble question; this became more sharply true of chemicals and metals to make pulp, as well as to pulp itself at year's end. PULP & PAPER withdrew a survey of sulfur conditions only three weeks old; it had become too optimistic. Many metals, notably copper and clad steels and stainless, were critical. Just as ammonium interest was rising, that situation began to look tighter. At least one mill wrote customers of a 20% cut-back on an essential chemical and suggested a similar reduction in fiber expectation. There was dawning the possibility that whether other Western Powers got the pulp, or the chemicals and metals, it meant domestic shortage in the end.

At least three Wall Street houses were making new surveys of sample pulp and paper companies with emphasis on timber holdings at true valuations, calculating to recommend industry securities to clients fearful of inflation.

Move to Separate from Lumber

At the year's end there was a growing concern about an old subject: Whether or not, in times of emergency, this industry should be separated more or less completely in the Washington bureaus from the general classification of "wood products." The question is as difficult of solution now as during World War II, and as difficult of accomplishment as would be the actual extracting of pulp and paper problems from the general puzzles attending forestry, log production, and competition between paper and lumber products for a raw supply.

A sample survey by PULP & PAPER reveals the industry is by no means united in a belief the two should be separated, either physically in the war agencies or in the government mind. But it is known that some top Washington bureau men are for it, and there is a similar reflection in the industry which makes up what can be called a concerted, if tentative, effort to bring it about.

Said one industry leader, instrumental in a test approach: "By getting out of the lumber and woods products classification we can get more first-class men to watch our interests in Washington. The pulp and paper industry is larger, with more implications and problems, than the lumber industry, and now it's a case of the tail wagging the dog. There has been no unfairness or difficulty as yet, but there can be later."

At least half a dozen industry men, checked by this magazine, felt that Presidential Advisor Gordon Gray (head of the University of North Carolina) was spelling out western powers controls in his November report, dealing with minerals and other natural resources, which advocated controls "in addition to domestic regulations," and its essence was embraced in the phrase "international collaboration."

The best informed industry leaders were beginning to see that the amicable and necessary joint priorities established by Canada and the U. S. via. NPA Regulation No. 3 might well be a heralding of the inevitability of some type of very broad controls. This is a result of the U. S.-Canadian economic agreement signed Oct. 26, which is extremely broad as to a joint program "for mutual defense."

How long pulp would be exempt from "DO" ratings—because of favorable action in November on the recommendation of the Industry Advisory Council to NPA—no careful observer cared to predict. Paper was still stuck in the priorities classification, and many a pulp man had to admit that priorities exemption was a sword cutting two ways. The mills now could not pass on "DO" pressures for tight and vital chemicals or badly needed equipment. In several New England equipment plants our editor found, for example, orders slowed up because a pulp mill could not pass on a "DO" rating which the machinery plant in turn could not pass on to steel, copper and bronze suppliers.

European Experts in U. S. To Discuss Allocations

Robert Marjolian, secretary general for the European "Marshall Plan" project, arrived in early December in Washington with a staff of experts to discuss a possible western powers allocations and price control authority. His pulp expert accompanying him was Max Schmid, general manager of the Waldorf mill in Germany.

Forestry and Ideology

HOW SHOULD FORESTER USE HIS BRAINS?

E. W. "Ted" Tinker (in picture), himself an ex- U. S. forester and now executive secretary of the American Paper & Pulp Association, New York, in a San Francisco address Dec. 8, deplored "the divergence of some of the best professional brains (among foresters) to unjustified controversy and the promotion of new ideologies."

His audience was the Western Forestry and Conservation Association on the final day of its three-day convention, and Mr. Tinker pulled no punches in declaring if foresters and forestry schools applied the same degree of enthusiasm and intelligence to promotion and recognition of forestry as a *sound economic enterprise*, we would have been in a vastly better condition today from the standpoint of our national resource wealth and the soundness of our position."

He emphatically asserted: "The situation has developed to a point today where free and open discussion with public officials and legislators is called for."

Management has every right, said Mr. Tinker, to expect foresters to apply their talents to economics of wood production —"to place before them projects with accurate supporting data, indicating the economic soundness of their recommendations." He deplored the trend in schools to deal, instead, with the broad subject of conservation "and all that that implies."

He said he spoke from personal experience as a U. S. forester in the Lake States over 20 years ago, and that the problem was still a grave one.

Other comments by Mr. Tinker:

"If we are still harassed by critics and uninformed sentimentalists, I cannot but believe that this is due to lack of comprehension or possibly a natural desire to pose as a leader of thought and an evangelist, rather than a desire to be destructive. Organized industry has a responsibility to obtain recognition of progress made along forestry lines. Some progress is being made but from personal experience I am sure that our legislative halls will continue to be an open forum for these uninformed individuals, espousing a cause in the name of conservation that gives little consideration to the facts as they now exist.

"In the pulp and paper industry the programs of research that the various companies are developing, that will in the end solve the problem of little used species, represent a contribution to forest conservation in the U.S. beyond the imagination of our uninformed missionaries. The extension and cooperative programs that are being carried on by individual companies cover an area that has grown so rapidly that we have been unable to measure it. However, it has been estimated that it is rapidly bringing about good forest management practices on an area more than triple that included in company ownership, and company ownership now includes approximately twenty million acres of land for the pulp and paper industry alone.

"There is far too little appreciation on the part of organized labor, and on the part of dependent communities, of the job that is being done to perpetuate and expand job opportunities and, along with this, permanence and growth of dependent communities.

"There is no doubt that, while the situation varies with different regions in the United States, the creation of an environment that would encourage rather than discourage private forestry programs has been handicapped by the suspicions and antagonisms that I have mentioned."

ABITIBI DEAL FOR COAST MILLS

A $30,000,000 deal involving purchase of control over two important British Columbia forest industry corporations by Abitibi Power & Paper Co., headed by D. W. Ambridge (shown in picture), was being negotiated in December. At press time details were not disclosed.

However, it is understood that Abitibi, one of Canada's largest pulp and paper producers with half a dozen mills in Ontario, Quebec and Manitoba, has acquired most of the assets of British Columbia Pulp & Paper Co., which operates bleached sulfite mills at Port Alice and Woodfibre, and has entered into a working agreement with the Alaska Pine Co. and associated companies whereby it will have access to their extensive timber limits and woodprocessing plants in the Vancouver district.

The report was that Abitibi had virtually taken over the entire B. C. Pulp & Paper properties, but that Alaska Pine, while disposing of some control to Abitibi, will continue to have authority in management, especially of its sawmills and lumber sales. Major results of the deal, so far as it could be estimated, are:

1. Abitibi becomes the first Canadian pulp and paper company to extend its producing activities from coast to coast. Its farthest east mill is at Beaupre on the St. Lawrence. Port Alice, on an arm of Quatsino Sound, is a few miles from the open Pacific. Abitibi, with widespread pulp marketing facilities, will be able to add substantially to its high grade sulfite.

2. B. C. Pulp & Paper Co., a notably conservative although highly successful company, is assured of aggressive management in a larger organization and more self-sufficiency in pulpwood resources.

3. The enterprising Koerner brothers from Czechoslovakia—Leon and Walter—have assured their Alaska Pine companies an opportunity for fuller integration by finding a profitable use for large quantities of low grade species not required in sawmills.

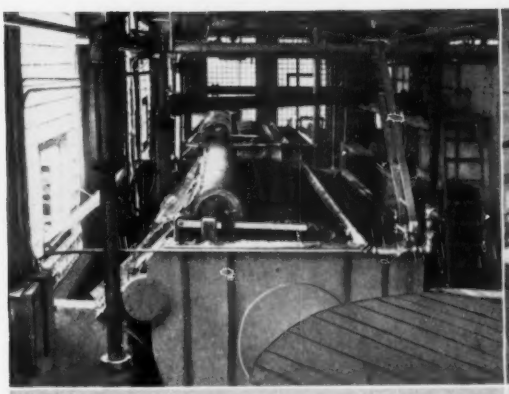
A new company may be formed and Alaska Pine may lose some of its identity. It may be taken for granted that the Alaska Pine mills, whatever their new name may be, are following the trend of other lumber organizations in British Columbia to achieve fuller utilization of raw materials by entering the pulp manufacturing field.

Mentioned as a possible sequel of this development is re-opening of the Port Mellon kraft mill formerly operated by Sorg Pulp Co. This mill has been offered for sale. It would provide Abitibi with means of utilizing pulpwood material not in demand at Woodfibre and Port Alice.

Abitibi produces about 685,000 tons of newsprint annually, 65,000 tons of bleached sulfite, 30,000 tons of unbleached sulfite, and 32,000 tons of corrugated board. The B. C. Pulp & Paper Mills produce about 150,000 tons of bleached sulfite pulps, dissolving and high alpha grades.

Polyethelene Partly Required for Military Use

Rampant has been a rumor that military is taking, or about to take, almost all polyethylene, either in its two original commercial chemical forms or in coated paper or laminates. PULP & PAPER found the facts nearer these: It's probable that at least one of the two largest makers of polyethelene is concentrating on the military aspect, possibly research based on its prime use last war, "packaging" of weapons and parts for shipment. But the second big producer is supplying civilian requirements, and the three principal papermakers coating with polyethelene, Union Bag, Riegel and St. Regis, are using it for civilian food wrap.

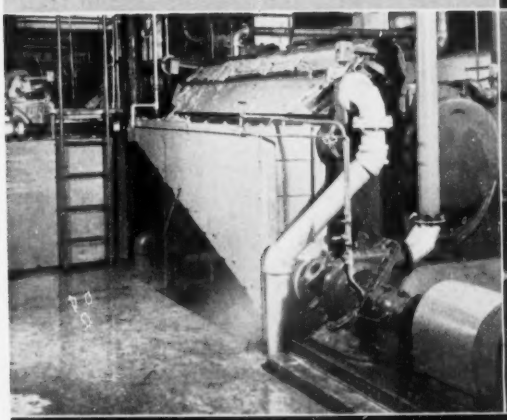


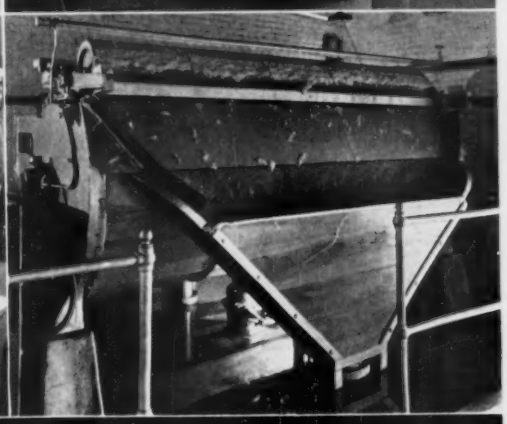
NOW

is the time to turn all those good, expensive fibres into good, salable paper instead of letting a lot of them go to waste for lack of an adequate, efficient, dependable recovery system.

Now is the time to look into

BIRD SAVE-ALLS





BIRD MACHINE COMPANY

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TWO OF MEXICO'S FINEST
LENZ MILLS EXPAND

Whether you are talking about paper or any of the variety of manufactured products which are now made in Mexico, you must rank the Lenz family's pulp and paper mills on the southwest outskirts of Mexico City among the most efficient, most progressive and most successful industries in that country.

In the favorite club of Mexican bankers and business leaders, they will tell you that Mexico has tripled in size industrially in less than a decade, with U.S. engineers and industrial experts prominent in this development; therefore it is no small honor for the Lenz operations to be so highly regarded by those same leaders.

The Lenz company—Fabricas de Papel Loreto y Pena Pobre S. A. (translated—Loreto and Pena Pobre Mills, Ltd.)—has hardly been standing still, however. With the startup on Oct. 18 of its entirely new additional mill at Loreto, with a 134-inch Rice Barton Fourdrinier machine for making 27 tons a day of fine papers or creped papers, this company has completed one of the most extensive programs of improvement and extension of any paper industry south of the Rio Grande.

The Lenzes were in the midst of this expansion at both the Pena Pobre and Loreto mills when a PULP & PAPER editor visited them, and took most of the pictures reproduced on these pages. Six Fourdrinier machines in the two mills make 100 tons a day of a wide variety of papers—tissue, toilet, printing, poster, bag, wrapping and waxed. That's big production for Mexico where machines must make a wide variety for the market.

The editor was first welcomed in the Loreto mill office of 83-year old German-born Don Alberto Lenz, still active head of his company and "grand old man" of the Mexican industry. Wearing a skullcap, he sat at an old-fashioned roll top desk, with one of those quaint old upright phones at his elbow. But you would never be more wrong in your life, if you jumped to the conclusion that appurtenances surrounding this fine old gentleman indicated anything old-fashioned about their papermaking ideas except for the tried and true fundamentals. From the beginning of his papermaking career in Germany back in the last century, he has kept up with newest developments, as have his three sons, Hans, Walther and Alberto, Jr.

The eldest, Hans, whose mansion is right on the Loreto mill grounds, alongside his father's, studied latest processes in Wisconsin and he is a technician and engineer who has planned and designed many improvements over the years in the Lenz mills. The newest extensive mill addition at Loreto was designed by Charles T. Main, Inc., engineering firm of Boston, who directed construction of buildings and installation of equipment, but always with Hans Lenz also taking a very important part in the planning.

It seemed quite fitting that the Lenzes should call in New England engineers to serve them, as their mills remind a visitor of the best of the clean, efficient New England mills. Even in the older two-machine mill at Loreto where installations may at first seem cramped, it is obvious that the most efficient use of operating space has been achieved, and yet there are no old-fashioned interfering

OUR COVER PICTURE—MEXICAN SCENE

Our cover picture this month shows the woodyard of Mexico's oldest continuously existing pulp and paper mill and—in the field beyond the wood piles—an ancient Mexican pyramid.

This is at the P a Pobre (Poor Rock) mill, at Tlalpam, nine miles southwest of Mexico City, one of the mills belonging to the Lenz family.

The picture was taken by a PULP & PAPER editor, as were most other pictures on these pages, with a Leica 3.5 lens camera on 35 mm. film at 1/100 sec. and 11 opening.

The pyramid shown in the cover picture is on a lava strewn plain at 9,000 ft. altitude. In the distance is volcanic Popocatepetl, rising 18,000 ft. — its smoke barely showing. This pyramid is a monumental relic of an Indian civilization which flourished for centuries before the Cortez conquest in 1519. It was a civilization which made the first paper in America—a very satisfactory sheet from cooked and beaten fibers of the fig or mulberry tree and, sometimes, the maguey bush, and accomplished this without any help from Chinese, Egyptians or any other race.

Records of this mill property go back over four centuries when a Spanish viceroy owned it and built one of the finest haciendas on it. An Englishman named Benfield built a European-style paper mill here 104 years ago which changed hands many times until acquired just 26 years ago by Don Alberto Lenz.

A beautiful chapel is on the mill grounds and so are the homes of two Lenz sons, Walther, who runs the kraft pulp mill here, and Alberto, Jr., who manages the paper mill and actually lives in one end of it.

Note in cover picture the stone fire walls built between the wood piles. This is mostly pine for the kraft mill, spruce for groundwood, and cut in 2, 4 and 8 ft. lengths.

While paper has been made at Pena Pobre for 104 years, the first European-type mill in America was at Culhuacan, Mexico, built in 1575, 115 years before the historic Rittenhouse mill in Pennsylvania.

AT PENA POBRE: This chapel is on mill grounds, just across a road from entrance to the paper mill. Mill employes attend services here.

ENTRANCE TO PENA POBRE Paper Mill. Paper made here 104 years—oldest continuously operated mill in Mexico. Note window flower box at upper right.

AT PENA POBRE: Settling tank for kraft mill and wood yard. Stone fire walls between rows of wood cut down insurance. Wood is 2 to 8 ft. lengths.

THE PENA POBRE MILLS owned by Lenz family which are at Tlalpam, D. F., nine miles southwest of Mexico City. At top is Pena Pobre 3-machine paper mill. Below is kraft pulp mill at right—the paper mill appears again in distance at left.

belting and cleanliness is an obvious outstanding feature.

To reach the Lenz mills one travels to the southwest suburb called San Angel. The Revolution party officially changed the name of this suburb to Villa Obregon, for one of its generals and leaders, but the new name never "took" except on official records. Even the postoffice must and does recognize the address San Angel for the Lenzes and their mills as that religious name is still commonly used.

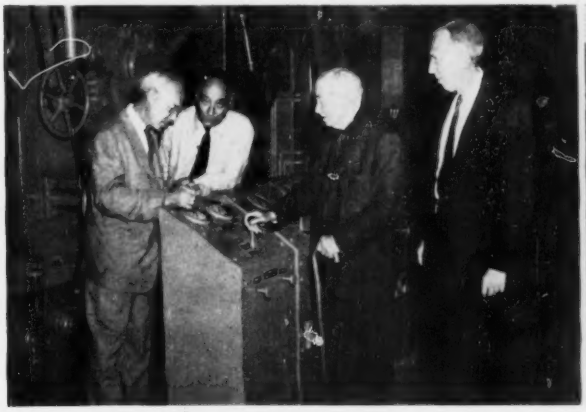
This is probably the fastest growing suburb of Mexico City, in fact, the whole city seems expanding out in that southwestward direction. One leading builder predicted a great city will rise eventually around these mills.

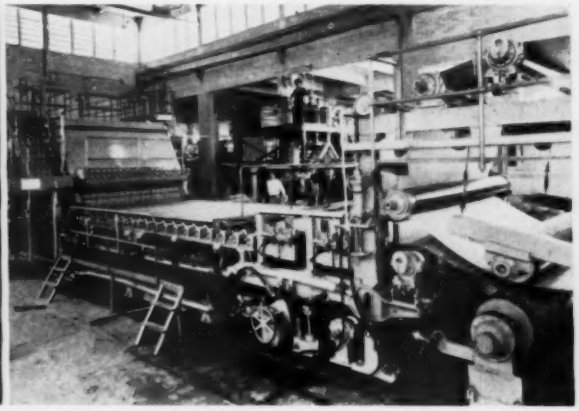
It was a remote, undeveloped area when the Lenzes moved there many years ago. In 1900, Don Alberto had built and operated El Progresso mill, at Villa Nicolas Romero, 25 miles to the northwest of Mexico City. Five years later he sold the mill to Jose de la Macorra I, an engineer from Madrid who had become the head of the big San Rafael paper company, and Don Alberto went into business for himself. Today the San Rafael paper company, by far the biggest in Mexico, and now headed by Jose de la Macorra II, and the Lenz company are regarded as the two leaders of the industry. More than a score of associated companies look to them for leadership in policy matters with the government and other affairs of general industry concern.

Despite their German background, the Lenzes never had their loyalty to Mexico questioned through two wars and have always had the most excellent relationship with the government. Furthermore, they alone of the important companies in Mexico have a company union for more than 600 employees and their wages and salaries have always been above the average.

Expansion at Loreto

In San Angel you come to the Loreto mill. It is seven miles from the heart of the capital at an altitude of 7,400 ft. Pena Pobre mill is at Tlalpam, two miles farther southwest and in the midst of volcanic lava beds; altitude, 9,000 ft. Some 40 miles or more farther south rises active 18,000 ft. Popocatepetl volcano popularly called "Popo." From the slopes of "Popo" and snow-capped Iztaccihuatl and other mountains to the south, the Indian wood cutters have been supplying the mills over many years with "oyamel"—the short-leaved spruce—and the even more abundant pine for the kraft mill of Pena Pobre. It is brought to the mills by truck in two ft. lengths, some of it





PICTURES TAKEN AT START-UP OF NEW MILL ADDITION at Lenz's Loreto operations outside Mexico City.
Left to Right—in picture at left—HERMAN A. SMITH of Rice, Barton Corp.; HANS LENZ, Gen. Mgr. of Lenz mills; DON ALBERTO LENZ, 83-year old "Grand Old Man" of the Mexican industry and President of the Lenz company; and EDWARD T. JONES, Charles T. Main, Inc., Engineers. They are observing press section controls on the new Rice Barton machine.
At Right—Fourdrinier section of 134-inch Rice Barton fine paper and creped paper machine which has started up at Loreto mill 7 miles southwest of Mexico City.

AT LORETO MILL: Wood twigs piled in mill yard are salvaged and sold at cost or less to employes for their rent-free living quarters.

AT LORETO: Purchased sulfite pulp from Puget Sound Pulp & Timber Co. and the man who sold the pulp to Lenzes—Meredith Parker of Mexico City, who is also a movie producer.

AT PENA POBRE: Covered chip conveyor to pulp mill. Over conveyor can be seen a pine arboretum and home of Walther Lenz, manager of the kraft mill there.

barked in the woods. They have tried out power saws but without much success so far.

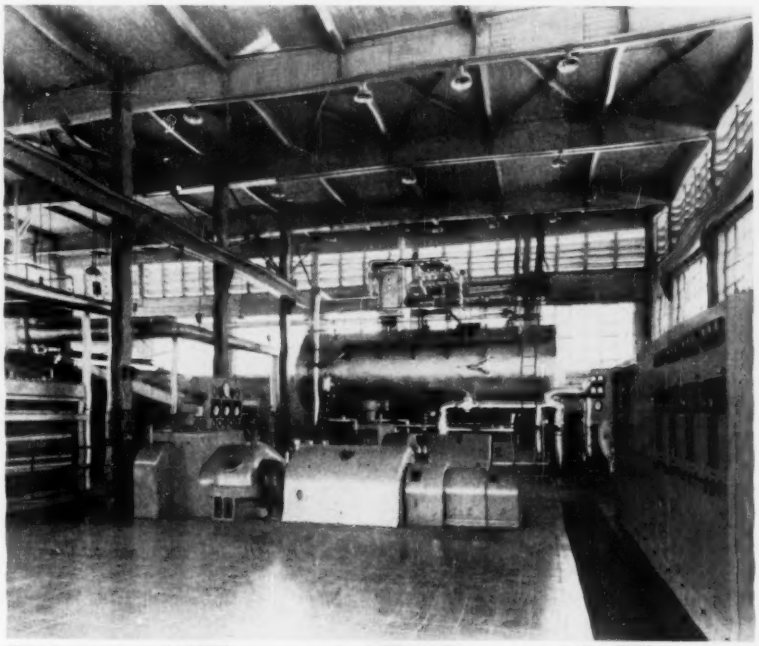
The architecture of the new buildings at Loreto is in accord with artistic modern design in Mexico. A new and larger power plant has been built to serve both the old two-machine mill and the new one-machine addition. The power line for the old mill goes underground right past the homes of Don Alberto and Hans which are on the mill grounds. A new brick office building has been built.

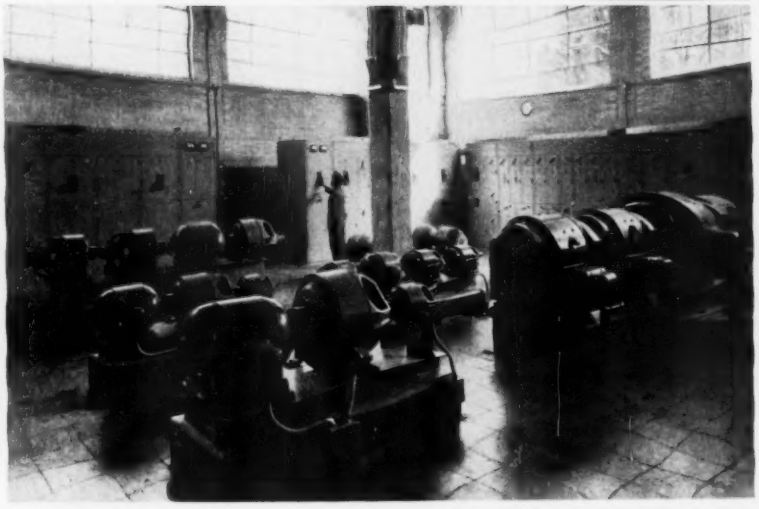
The power plant has two Combustion Engineering boilers. They are 50,000 lbs.-per hour, 425 p.s.i., 750 degrees F. max. temperature, oil-fired units. A new 1500 kw. condensing turbogenerator and a new 1,000 kw. back pressure turbine also have been installed in the very modern power layout. Power is also available from government lines. The old single boiler at Loreto was sold to a sugar mill.

Two new 1,000 h.p. Great Northern type grinders were supplied by the Montague company in Massachusetts, expanding groundwood mill capacity to 30 tons. Groundwood in the new mill is stored in a ten-ton chest at 5% consistency. A separate pumping system supplies pulp for old and new mills. Norton pulpstones are used.

Purchased sulfite pulp, mostly from North American mills, and kraft pulp from Pena Pobre are processed through a Shartle-Dilts Hydrapulper. A 6,000 gal. water tank with automatic level control is used to assure consistency control. The baled pulp is loaded by lift trucks onto a floor level conveyor with recording scale. One man handles this operation. All chemical pulp is handled in an 8 hr. shift and stored in two 8-ton chests. Operation of all valves, pumps and selection of chests is done on one central control board.

Six new E. D. Jones & Sons High Speed Refiners fitted with stainless steel tackle are among equipment additions at Loreto. All refining and blending of stock in the new mill is handled by one operator. From a platform at a control point ahead of the machine, the entire operation of





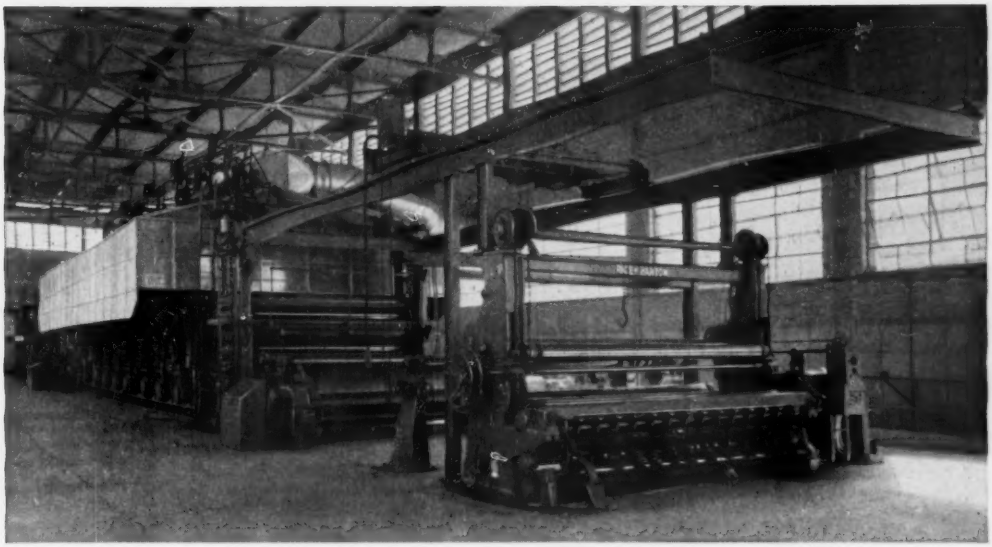
TOP—NEW POWER PLANT FOR OLD AND NEW LORETO MILLS—showing Combustion Engineering boilers; General Electric turbine; Control Board and 4150 Volt Switching.

BELOW—LOAD CENTER WITH RICE BARTON MACHINE'S General Electric drive motor generator sets. All controls for entire mill are grouped in this one filtered air condition room.

Our Best Wishes to

FABRICAS DE PAPEL LORETO Y PEÑA POBRE

MEXICO CITY



We are happy that the paper machine in this new, modern mill was built by Rice Barton Corporation. ★ It is engineered and built to do a specific job and to fit the requirements of space, production and market. ★ That's why Rice Barton machines have won so many friends in mills where costs, quantity and quality count.

THREE LENZ BROTHERS *(top row—l. to r.)*: **HANS, the eldest, stands in front of ancient giant tree on grounds of Loreto Mill, which he manages; WALTHER, who manages the Pena Pobre kraft pulp mill, and ALBERTO JR., who manages Pena Pobre's paper mill.**

Below: Hans Lenz's home which is on mill grounds at Loreto (his father's mansion is also on Loreto mill grounds, both a few steps from their offices and the machines). At lower right: Sequoia tree planted from seed brought from Pacific Coast of U.S. in Hans Lenz's garden. Foresters had warned it wouldn't grow in the Mexico City region, but they didn't reckon with Hans Lenz's painstaking and experienced care.

groundwood mill and paper machine can be observed. Controls for consistency, weight and all stock pumps, and a mixing chest are located here.

The 120-inch trim Rice Barton Fourdrinier machine was started up smoothly, with the first reel completed in one hour and 35 minutes after stock was turned on. The machine has a top pickup felt, creping dryer, crepe setting dryer, and fifteen 60-in. dryer rolls. These are followed by six-roll calender stack; uniform speed reel; Rice Barton winder. The machine has a General Electric sectional drive. Electric controls for the entire plant are located in a separate room with its own filtered air ventilating system.

The machine is designed to make at least 27 tons a day of fine papers or creped papers. Ed Jones of Chas. T. Main and H. A. Smith and Al Wolons of Rice Barton Corp. were on hand to see the new machine roll.

The new machine has a J. O. Ross Engineering hood and air system, a Warren fan pump with Allis-Chalmers variable speed drive, DeZurik consistency regulator, Nash vacuum pumps and all operations centralized on a Foxboro instrument panel. Ahead of the machine are Bird screens.

A new converting plant is also a part of the new mill additions.

The two machines in the old mill have made a variety of papers. One of the interesting products seen when the mill was visited by this editor was the familiar Palmolive green soap wrap, made with Dupont green pigment. In the converting end were Potdevin machines for bags. Multiwall bags for cement, chemicals and fertilizers were being made; also many smaller bags. Waxers and crepers were here; also Loreto made paper twine for its own uses.

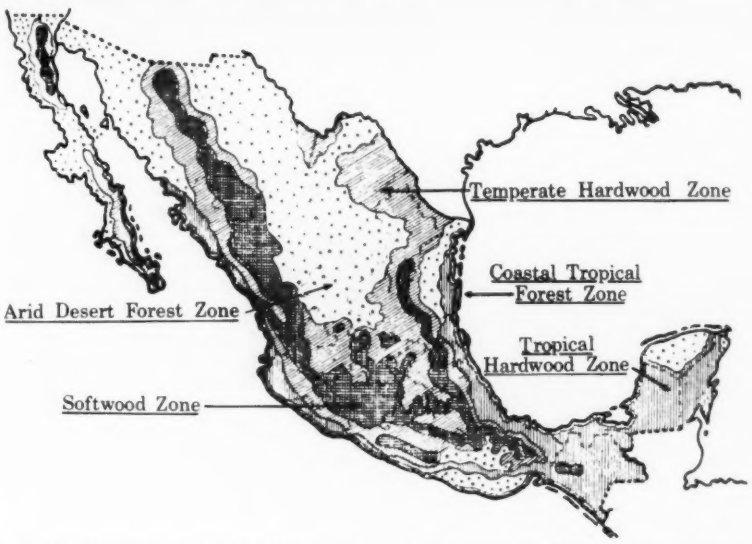
An interesting observation here is that the Lenzes make their own rubber dies for printing papers for some of their customers.

Expansion at Pena Pobre

But with the handsome modern mill built at Loreto, the improvements and expansion at the Pena Pobre mill in Tlalpam should not be forgotten.

It was "hasta manana" to Hans Lenz at Loreto as he dispatched us the short two miles down the road to Pena Pobre and there his two brothers greeted us. They revealed continuing extensive improvements here—new chippers, two new digesters, expansion of washing and screening operations, a second B & W boiler and improvements in the kraft chemical end which have been in only a few years, and bleaching equipment. As kraft goes the pulp mill is small—35 tons a day production.

FOREST RESOURCES OF MEXICO are shown on this map, reproduced from a U.S. Department of Commerce report.



First, PULP & PAPER was greeted at the ornate gates by Walther Lenz, the kraft pulp mill manager. His home at the entrance is—as a kraft man's should be—landscaped with planted pine trees.

This mill was installing two new Car-

thage multi-knife chippers in its wood plant; two new digesters; new three-stage Impco washers were replacing two stage Impco washers; and new Impco flat and rotary screens were being installed.

A second Babcock & Wilcox 45,000 lb. pressure boiler with complete Bailey Meter automatic controls was a new 1947 installation. Both boilers were identical. A 300 ft. high stack carried off the fumes from recovery plant.

The water treatment plant was especially engineered for Pena Pobre by the Lenzes in cooperation with Cochrane Co., for complete chemical removal of silica. Cochrane and Worthington equipment were used. The silica is heavy in the water here, but it is not hard water.

A four-body Swenson evaporator with space for a fifth; a Dorr causticizing system, and General Electric 1200 kw. turbine are among other major installations at Pena Pobre. For the kraft mill, 75% of the salt cake comes from San Luis Potosi, in central Mexico, and the other 24% is imported from the U. S.

Recovery of chemicals at Pena Pobre runs from 80% to 85%.

A short distance from the kraft mill is the three-machine paper mill at Pena Pobre. Here Alberto Jr. is the manager.

His home, beautifully landscaped, is actually an end section of the mill. A Catholic chapel is also on the mill grounds.

This groundwood mill has three machines —a 100-inch machine, about 50 years old, which was in the mill when the Lenzes bought it in 1924; and two 120-inch machines which were added by the Lenzes in 1924 and 1932. The later machine makes book paper as well as kraft.

The resourcefulness of this company, which has made so many of its own requirements and still does, is one of the noticeable features of their operations. Just another example of one—they were making their own silicate cores on a German tube machine quite different from any in the U. S.

The Lenzes designed a rosin cooker, using soda ash for cooking with an overflow system for returning ingredients.

Their crews seem a cut higher in intelligence and skill than many seen in other Mexican industries; they are paid better; their homes are free and they have the benefits of company insurance, school and medical clinic.

A MAP reproduced from Hercules Powder Co.'s PAPERMAKER in which was a review a couple years ago of the book "Aztec and Maya Papermakers" by Dr. Victor Von Hagen (J. J. Augustin, New York) which records the independent development of papermaking in those civilizations. "Amatl" paper made region shown was collected as tribute to Aztecs and earlier rulers in Mexico City. An expedition in 1946 discovered eleven Mayan temples in Bonampak, shown on map in province of Chiapas, believed built between A.D. 495 and 672. Mayans were among the first people to make paper.

HANS LENZ HAS AN UNUSUAL LIBRARY
Primitive Mexican Paper Specimens

Hans Lenz, general manager of the Pena Pobre and Loreto mills of Mexico, has made an extensive study of ancient papermaking in America. He has also made many technical studies of timber resources in Mexico.

One of the highlights of the visit by PULP & PAPER to the Lenz family industries was visiting the home of Hans Lenz, right on the Loreto mill grounds, southwest of Mexico City. For in his private library were seen numerous photographs of scientific and historic value—many of them being microphotos of fibers, Indian made papers, etc. Also there were limited editions of beautifully printed books compiled by Sr. Lenz, one of them having been selected and shown a few years ago in a Graphic Arts exhibition in New York as an outstanding Mexican contribution.

Many of our readers will recall that not long ago the Asten-Hill Mfg. Co. of Philadelphia distributed samples of Huasteca handmade Indian paper, used for religious ceremonies, and obtained with great difficulty for them by Hans Lenz. The crude paper, still made by Indians in remote parts of San Luis Potosi, were cut into symbolic figures and covered with blood from sacrificed animals in religious ceremonies.

When Sr. Lenz takes a vacation, he doesn't go to Broadway or to Acapulco—he prefers to travel into remote areas of Mexico in search of ancient examples of paper or to study species of wood. In his home he has examples of the ancient fig tree paper —like the "huun" paper of the Mayans (possibly made as long ago as 200 A.D.; probably even before the Chinese, supposedly the first papermakers, had discovered how to make it. This was also the tree used for "amatl" paper by the Aztecs, long before Cortez arrived. Fig tree fibers were soaked or boiled in lime water to remove sap, then beaten against a board to form a sheet. The white-barked fig was called the "paper tree." The maguey bush (century cactus plant) also the base for a strong alcoholic drink, tequila, was also sometimes used for papermaking. Remote tribes still use the fig or mulberry tree fibers.

Sr. Lenz even had in his library a microphoto of a kind of paper made by caterpillars in the wilds of Mexico.

In ancient times, paper was so highly valued in Mexico it was collected as tribute from villages by the government in Tenochtitlan, city that stood where Mexico City now stands. Paper was also tribute to the Montezumas, and it was used for decorative and ceremonial purposes, or for news bulletins, some sheets being 30 ft. long.

CHARLES SUMNER BARTON, Vice Pres. and Gen. Mgr., Rice Barton Corp., plans to fly soon to Mexico City to see first paper being made on Lenz's new R-B machine.

Rice Barton Engineer Adds His Observations

Herman A. Smith, Rice Barton sales engineer, who spent "two memorable" weeks at Loreto mill as a pampered guest of the Lenzes, after reading our story, suggested these interesting additions:

"This strikingly modern mill at Loreto (San Angel) was laid out to avoid cutting down too many trees on the building lot, where two of the Lenzes have their own homes and gardens.

"Something like 60,000 tons of cement were mixed and handled by old-fashioned Mexican methods. Each workman had a shovel and two 5-gallon oil cans on a yoke over his shoulder, and these he carried up to the top of the building on rickety ladders.

"Water supply for this mill comes from a deep artesian well, and since the supply is rather limited, the wastage is kept down to an absolute minimum.

"They have their own woodlands and a few miles from the mill is a nursery where thousands of baby trees are being studied. This is part of their scientific re-forestation program."

Recent Expansion At Maclaren Co. Mill

Details concerning the recent expansion of the James Maclaren Co.'s 350-ton newsprint mill at Buckingham, Que., have been furnished by A. T. Hurter, of Stadler, Hurter & Co., consulting engineers of Montreal and New York, who played an important part in the program.

A complete grinder room was installed, with 12 Waterous magazine super-grinders arranged in tandem, with 5000 h.p. General Electric motors. The room is equipped with a Ross Engineering Co. exhaust and ventilating system. A new electric sub-station for grinder motors was built.

Five Pascol bull screens were put in, with stock chests, refining system and other processing requirements.

New wood-handling facilities include a new stacker, extension of the existing log flume, and belt conveyor.

Penn Salt Spends $3,000,000 on Plants

The Pennsylvania Salt Manufacturing Co. is spending about $3,000,000 for expansion and improvement of production facilities for chlorine and caustic soda at Wyandotte, Mich., Portland, Ore., and Tacoma, Wash. A number of other projects are being evaluated by the management, but no final decision has been reached with regard to them.

NEWS IN BRIEF • • • AND BULLETINS

CANADIAN INDUSTRY GATHERS UNDER WAR CLOUD

Developing war-engendered controls and a U. S.-Canadian economic agreement for joint priorities on supplies and materials loomed as probably unscheduled subjects for informal discussion as the Canadian Pulp & Paper Association leaders prepared to attend their annual meeting Jan. 24-26 at the Mount Royal, Montreal. Harold S. Foley, Powell River Co. president, is serving his second term as association chairman. Technical Section papers will be on subjects such as alkaline pulping corrosion; bark-burning for power and heat; high energy wood grinding and newsprint production problems.

FOUR TIMES THE DEMAND FOR NITRATING PULP ?

What are the ideas of the military on pulp for smokeless powder, should there come all-out war? Sources close to LeRoy Neubrech, chief of pulp and paper activities of NPA in Commerce said NPA had no hint in early December. However, a reliable source advises PULP & PAPER there are Pentagon officials who talk in terms of nitrating pulp demand from four to six times that of last war. Reason: Such weapons as the bazooka, with which infantry consumes much more powder than with rifles. It is reported at least two mills have been approached to start revised research and pilot runs on nitrating pulp. Their location would be top secret. . . . . .

MEAD GIVES VIEWS ON RUSSIA AND CONTROLS AT NPTA

George H. Mead, honorary board chairman of The Mead Corp., past president of APPA and now member of National Security Resources Board 12-man policy committee, told a packed audience at National Paper Trade Association meeting in Chicago Oct. 24 that controls are better than inflation and "inflation is a greater menace than Russia." Mr. Mead said at the outset of Korean crisis he had recommended wage and price controls "by tomorrow morning." The socialization threat in controls, he said, was not a valid objection because there is no other way to stop spiraling inflation. He expressed a belief that Russia does not want a world war. He said the U. S. government could not be criticized for failing to estimate defense costs in the midst of inflation. .

POTLATCH AND CELANESE MILLS TO START UP

Far western developments: Potlatch Forests Inc., Lewiston, Idaho, was already making some pulp in late November, and planned to put paper over the new Rice Barton machine by Christmas week, a little less than a year after construction began . . . Start-up of Celanese (Columbia Vellulose) sulfite dissolving pulp mill at Watson Island, B.C., will probably not be until March or April . . . New $1,300,000 bleaching facilities at Puget Sound Pulp & Timber Co., Bellingham, to be completed before mid-1951 . . . Rayonier's annual report states directors' approval of 10% expansion of its mills. . .

TWO NEW ST. REGIS MACHINES FOR FLORIDA

We reported last month the St. Regis Paper Co. "felt it was well-fortified" by access to 670,000 acres of Southern timber for expansion at its Southern mills in Pensacola, as well as its new mill site at Eastport, Florida. Now that company has confirmed that it has simultaneous orders for two new kraft paper machines adding 225,000 tons per year, primarily for multiwall bags. One will go in at Pensacola, the other at the Eastport site, just a few miles northeast of National Container's Jacksonville mill. With added pulp manufacturing and auxiliary equipment, the expansion will cost $30,000,000. Thereafter, North New York St. Regis kraft mills will concentrate on specialties. . .

BUYS CHEBOYGAN AND GRANVILLE MILLS

I. Lawrence Lesavoy, 350 Park Ave., New York, announced purchased by his organization of two long-idle mills—the Paper Corp. of America mill at Cheboygan, Mich., and Granville Paper Co., Newark, Ohio. Newark, idle a year and a half, is to make 100 tons per day of newsprint and Mr. Lesavoy plans to triple its output by expansion in kraft and sulfite specialties by late 1951. The Cheboygan mill, idle nearly a year, will soon resume 100 tons daily output. As president of Swedish American Pulp Co., Mr. Lesavoy is remembered for purchase of shut-down mills following the last war, integrating them with foreign pulp trading. He is president of two other organizations, headquarters at 350 Fifth Ave.: Rayon Corp. of America and the Lesavoy Foundation. Several years ago he gained nationwide attention as the holder of advertising rights involving publicity on the famous Dionne quintuplets. Associated with him in the same capacity as then is his public relations man Keith Munro, Canadian-born writer. .

ELK FALL'S FINANCING

Elk Falls Co. Ltd., owned jointly by Pacific Mills and Canadian Western Lumber, has been granted registration under the B. C. Securities Act covering $13,500,000 financing. Total investment of $21,500,000 is estimated. It is proceeding with construction of a newsprint plant on Vancouver Island. The new mill is designed to start up with 75,000 tons of newsprint annually, with Crown Z agreeing to buy at least 60,000. . . . . .

MARATHON EXPANSION IN CANADA

Marathon Paper Mills of Canada plans $3,000 000 expansion of its operations at Marathon on Lake Superior, Ontario, according to John Stevens Jr., of Rothschild, Wis., including a chlorine plant and lumber and r. r. ties unit. . . . . .

BENTON R. CANCELL (left), who has become Vice President in Charge of Manufacturing for Rhinelander Paper Co., big glassine and greaseproof papers producer of Rhinelander, Wis. We reported last month that Mr. Cancell resigned as Vice Pres. in charge of Printing, Publication and Converting Papers in St. Regis to accept a high post with Rhinelander. PULP & PAPER was since advised of his new title, which indicates he will relieve Pres. Folke Becker of administrative duties to a considerable extent.

A. HUGH WICKETT (right), new Kraft Mill Supt., Weyerhaeuser Timber Co., Longview, Wash., recently promoted from Shift Supt., when ex-Kraft Supt. Gerald F. Alcorn became Engineer in charge of construction of the new kraft board mill at Longview. Mr. Wickett, educated in Ontario and British Columbia, was Shift Supt. at KVP Ltd., Espanola, Ont., and prior to that at Pacific Mills Ltd., Ocean Falls, B. C.

St. Regis to Restore Howland Mill for Kraft

Roy K. Ferguson, president of St. Regis, announces that the company has purchased the old Howland mill, near Bangor, Me., from the Atlas Plywood Co. of Boston, and will produce 30,000 tons annually kraft pulp therein.

The mill is on the Atlas Plywood site at West Enfield, 45 miles from Bangor, and only 20 miles from the nearest St. Regis timber holdings in the northeast. It is also in the center of large farm acreage from which the paper company will draw on the market. Originally used for pulp processing, the Howland structures have been idle for some time.

Additional equipment to begin production in three months will be installed. Pulp will go to northern mills of St. Regis on kraft papermaking. It will relieve pressure on the St. Regis pulp mill at Tacoma, Wash., and allow the latter to devote full capacity to the St. Regis paper and bag facilities in the West.

The new mill will be under George D. Bearce, manager of St. Regis operations at Bucksport, Me.

Bulkley, Dunton Agent For New Celanese Mill

Bulkley, Dunton Pulp Co., Inc., will be selling agent for the market pulp produced by Columbia Cellulose Co., subsidiary of Celanese Corp. of America, according to Dr. R. H. Ball, general manager of the cellulose division of the parent company.

Dr. Ball reports that cellulose for rayon, plastics and explosives, is in short supply and the small U. S. cotton crop reduced available linters. Acetate grades of pulp are 23% higher than a year ago and bleached cotton linters 260% higher.

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Bingham "PULP-HOGS" are being used effectively in the Pulp and Paper industry for handling air entrained pulp from *Stock Flow Meters, Consistency Regulators, Save-Alls, Pulp Refiners, Knotters, Beaters, Washers, Deckers, and Thickeners.*

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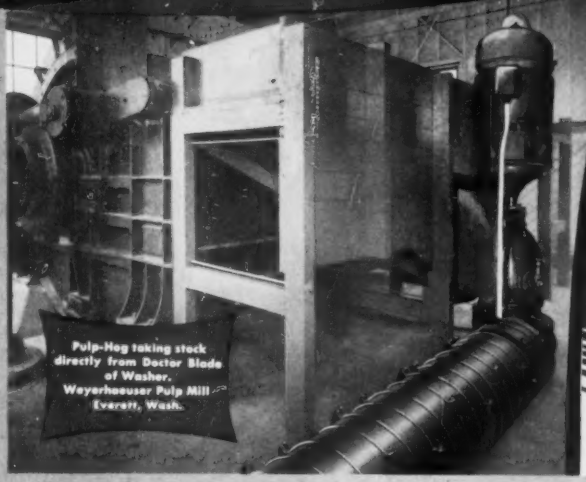
An important factor in Bingham precision built pumps is the static and dynamic balancing of all impellers and rotating parts by means of the Gisholt Dynetric balancing equipment shown (right). This is typical of the precision machinery in our new, modern plant.



Pulp-Hog taking stock directly from Doctor Blade of Washer. Weyerhaeuser Pulp Mill Everett, Wash.

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NPA'S 1951 FORECAST

The National Paperboard Association, in annual convention at Waldorf-Astoria in New York, Nov. 9-10, heard estimates by its statistician, Alvin A. Newburg, that total paperboard production in the U. S. for 1950 would set a new all-time record of between 10,900,000 and 11,000,000 tons. For ten months it was 13.9% above the same period in 1948 and 22.8% above a like 1949 period.

George E. Dyke (in picture), of Robert Gair, and W. H. Beckwith of Morris Paper were re-elected president and vice-president of the association. President Dyke made this forecast of the future: "(1) heavy demands for our product over a considerable period of time; (2) a higher level of taxes, both on corporations and individuals; (3) higher costs for labor, materials and services; (4) increasing controls on what we do, on what we buy, on what we charge, and probably in connection with whom we hire; (5) a constantly expanding military establishment; and (6) a further substantial degree of inflation."

Warren B. Bullock, manager of the Import Committee of the Paper Industry, said it was "questionable" whether Congress would extend the Reciprocal Trade Agreements after next June because the way the government has carried out the program "has aroused so much antagonism."

Elected to the NPA executive committee for 1951 were Mr. Dyke, chairman; Mr. Beckwith, vice-chairman; W. J. Alford, Jr., Continental Paper Co.; T. Noel Bland, Fibreboard Products; W. M. Dixon, Container Corp.; Sidney Frohman, Hinde & Dauch; E. T. Gardner, Gardner Board; Alan G. Goldsmith, Mead Corp.; J. H. Hinman, International; H. M. Kieckhefer, Kieckhefer; M. C. McDonald, Chesapeake Corp. of Va.; Jos. S. Miller, New Haven Pulp and Board; C. E. Nelson, Mac Sim Bar; W. Irving Osborne, Jr., Cornell Wood; H. D. Schmidt, Schmidt & Ault; Marvin W. Swaim, Alton Box Board; and Harold E. Wright, Champion.

MORE USES OF RADIOACTIVE TRACERS

The Baie Comeau mill of Quebec North Shore Paper Co. made a run on its No. 2 paper machine on Nov. 8, using radioactive iodine for tracer material in order to study flow of stock, G. J. Lane, divisional manager at Baie Comeau, wrote PULP & PAPER.

This is believed first time radioactive isotopes were used as a tracer to study formation of the sheet and to indicate to a degree not possible before, the flow contours of fibers through the machine.

It may help in attaining more uniformity and in designing and evaluating improvements, especially on wide, fast machines. The No. 2 machine, 262 in., was running at phenomenal speed of 1,710 f.p.m.

In March, 1950, issue of PULP & PAPER, we reported how a Beta Gauge manufactured by Tracerlab Inc., Boston, has used radio isotopes in Continental Paper Co., Ridgefield, N. J., to indicate and help keep uniform the weight of paper. J. Kohl, Tracerlab's western engineer at Berkeley, Calif., made similar trial installations of Beta Gauges in Los Angeles paper mills, our report stated.

Also it was reported by PULP & PAPER in March, 1950 how Rolland Paper Co. in Quebec used radioactive tracers to end waste from static electricity that crumbled paper on press runs.

Both Rolland and Baie Comeau obtained their radioactive materials from the Canadian atomic pile at Chalk River, Que.

A very negligible amount was used at Baie Comeau and only from one of six screens feeding the machine. A new technique made it possible to tag the paper which, when repulped, had negligible activity. The tracing technique permits tracing fibers through a mill without interrupting production. Dr. C. A. Sankey, research director of the parent Ontario Paper Co., supervised.

CENTRALIZES PERSONNEL RELATIONS

Champion-International Co., Lawrence, Mass., coated paper mill, according to President Kurtz M. Hanson, has centralized control of personnel relations under King MacRury, named to the newly created position of director of personnel and management relations. Mr. MacRury came to Champion-International from Oxford Paper Co. He was at one time with McKinsey and Co., Management Consultants, and the National Industrial Conference Board.

NEW PORTUGUESE MILL

Kaarlo Amperla, Helsinki consulting engineer prominent in Scandinavian countries and on the continent, and Edwardo Carvallo, Portuguese industrialist, were busily winding up contract matters with equipment makers at New York's Plaza Hotel in late November as first step for a new 110 ton kraft paper mill in the mountainous area 175 miles from Lisbon where abundant water power potential will be tapped. The paper machine has been purchased in England, but Mr. Carvallo ordered in U. S. Swenson evaporators, Impco washers, Sandy Hill's Kamyr units, Sutherland refiners, Warren and Buffalo pumps and Bingham pumps on the digesters.

New Pulp Mill Planned at Sarnia, Ont.

Reports from Sarnia, Ont., indicate that a $7,000,000 groundwood and sulfite pulp mill is planned for that area, to be financed by U. S. publishing groups, whose identity has not been disclosed. Construction is to start in early 1951 on a 45-acre tract at Point Edward on St. Clair River. It is understood that the Sarnia project is part of a $21,000,000 program, including establishment of logging camps and a conversion mill in Port Huron, Mich.

The proposal is to pump groundwood and sulfite pulp manufactured at the Canadian mill across the St. Clair.

At the Port Huron mill, to be erected at a cost estimated at $9,000,000, the pulp will be converted into catalog and directory paper at a rate of 62,000 tons annually. In the slush form, pulp crosses the border duty free.

NEW CHARLESTON MANAGER

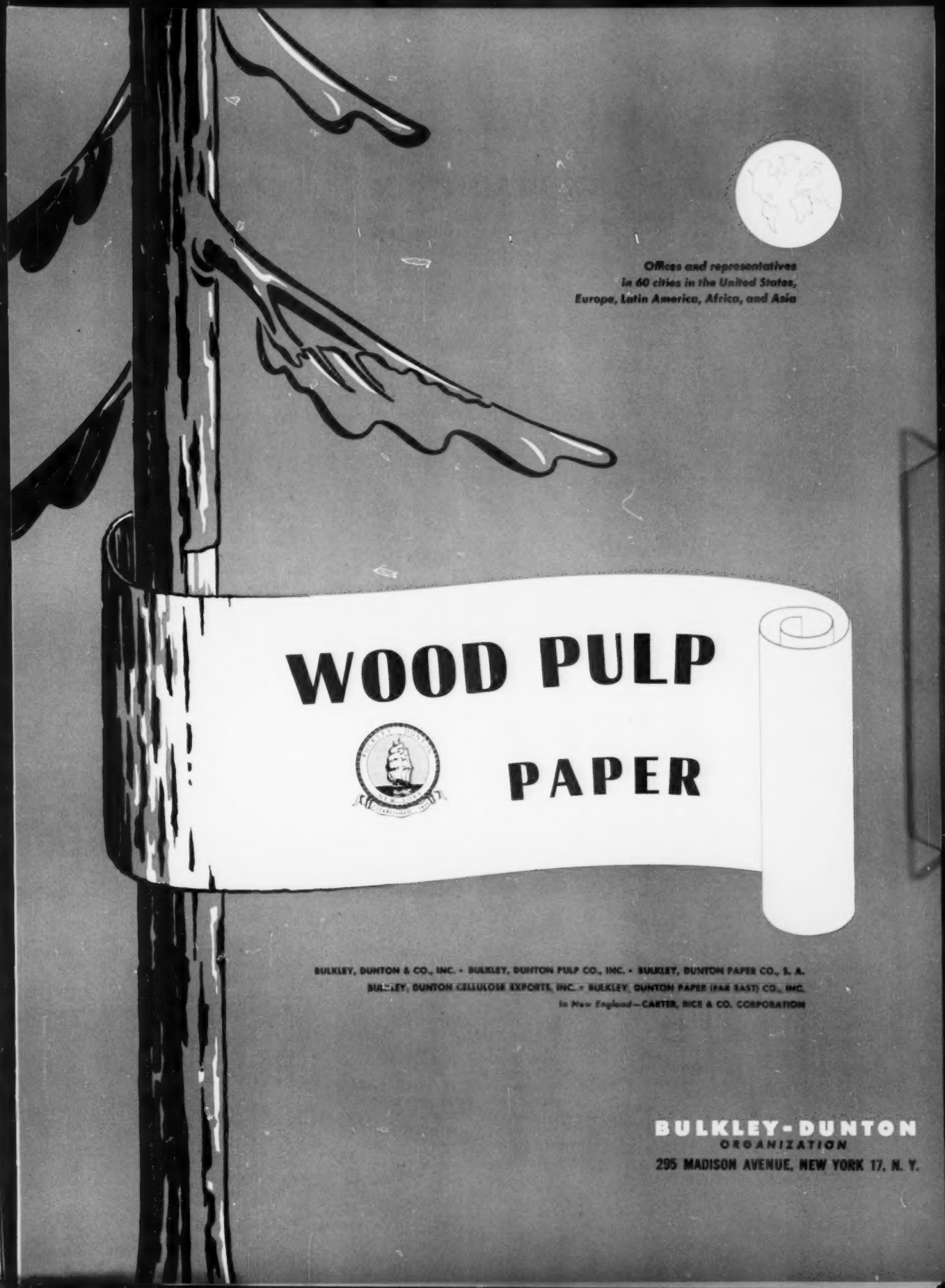
L. FRANK THOMPSON (left), promoted from Asst. Mgr. to Resident Mgr. of West Virginia Pulp & Paper Co.'s Charleston, S. C., plant, succeeding THEO. A. (Doc) COOK (right), Mgr. since mill was built in 1936-7. He retired at age 65 on Nov. 22. Mr. Thompson is a Charleston native, joining mill staff when construction began in '36 as Employment Clerk, working up to Personnel Mgr. and Asst. Mgr. Mr. Cook joined West Va. as Chemist at Tyrone, Pa., in 1910, where he got nickname "Doc." He worked up to Tyrone Pulp Supt. in 1927, directing modernization of pulp mill there, and then moved to Charleston to manage construction and later operation. Born in Millington, Md., he graduated with B.S. from Penn State in 1905.

Hoberg Finances Coal Use for Liquor

Coal briquettes made with sulfite liquor as a binder to hold the powdered coal together are being tested by the C. Reiss Coal Co., Green Bay, Wis. This is another future possible use of this industrial waste material at a cost saving to fuel processors while aiding the pulp industry to reduce stream pollution.

Development work at the University of Wyoming, financed by the Hoberg Paper Mills, of Green Bay, is carried on under the supervision of the Sulfite Pulp Manufacturers Research League, of Wisconsin and Michigan. Results of the Wyoming research have been encouraging but not conclusive.

The industry is interested in briquetting as one way that might put a worthwhile volume of spent liquor to a non-pollutional use.



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GREEN BAY USES ASPEN

ANOTHER IN SEMI-CHEM PLANT SERIES

To the Mead mills of the Middle South chestnut belt must go credit—along with the U. S. Forest Products Laboratory in Madison, Wis.—of pioneering semichemical pulping a quarter of a century ago.

But the semichemical processes of today, of course, are more efficient, more diversified and productive of higher quality papers and boards. For 20 years the process was almost a Mead monopoly, but just five years ago there began a tremendous upswing of semichemical pulping starting in the IP and Gaylord mills of the South and spreading to the Midwest, where the new pulp is used in coated book papers (as described in our August issue) and probably soon in glassine. It has spread up into Canada from Powell River on the Pacific Coast to Sturgeon Falls and on to Bathurst way out on the Gulf of St. Lawrence.

In a series of articles PULP & PAPER has recorded these advances: In Aug. 1950, our story on Consolidated Water Power & Paper's book paper semichemical plant; in Nov. 1950 on Gaylord Container's plant; in Dec. 1950 on American Box Board's. In the earlier 1950 and 1948-49 issues we published data on Sturgeon Falls, Powell River and Bathurst.

This new wave of expansion is important because it has brought about the new utilization of tree species—trees that were scorned as weeds or of little value except as fuel. It has brought higher yields and return for investment, and in places where it is possible to use the new neutral sulfite process, a substantial reduction of the spent liquor dumped into streams.

In any recording of the more recent milestones of semichemical pulping, the Green Bay Paper & Pulp Co. of Green Bay, Wis., must be ranked as a modern pioneer. A few days before Christmas, 1949, this company, offshot of the Green Bay Box Co., started making neutral sulfite semichemical pulp for its own use and for sale. Green Bay Box had been going into the market since 1934 for the raw material for its corrugated shipping containers and since 1941 for its folding cartons.

Uses 100% Aspen

The important point isn't just that Green Bay is making a semichemical pulp, its raw material for 9 pt. corrugating being 100% aspen (known also as "popple"), long considered the weed tree of the Lake States but now fantastically in strong demand, because of developments like the Green Bay plant. It also is largely because of the company's adherence to a scientific approach to the project while being willing to experiment—its careful and close controls of process, but eagerness to learn by trial and error—constantly aiming for the greatest possible production of premium grades of .009 corrugating and liner boards with a high pulp yield of about 79%.

The inspiration for this approach has been George F. Kress, native son of Green Bay and head of the company (president and treasurer), ably abetted by George E. Mackin, general manager from U. S. Forest Products Laboratory; Lloyd "Curly" Lang, general superintendent, and former development engineer for Kimberly-Clark and Crossett and one of famous Lang brothers of this industry; and by Huguenin "Hu" Miller, pulp superintendent, formerly with Central Fibre Products, who more recently was superintendent of the Watervliet Paper Co.'s neutral sulfite semichemical pilot plant for magazine cover and coated card stock.

Clyde Faulkender, technical director of Hoberg Paper Mills, Green Bay, was loaned as a consultant on the project. He developed the general mill layout and directed the detailing of the wood room and pulp mill plans. Mr. Faulkender, a graduate of Iowa State University, has long been associated with semichemical pulping. Carl Magnus of the Morain Paper Co. in the Miami Valley of Ohio was also a consultant.

More later about the staff and the expert consultants who were brought in, especially the men of the Forest Products Lab at Madison. Without their assistance and the development work done at Madison on the process, the plant could not have been built, Mr. Kress frankly admits. The Laboratory's Pulp & Paper Division, in fact, has had a great deal to do with the research that led to most of the new semichemical plants over the country.

Averaging 58 Tons; But Increasing

The Green Bay plant, with its Bagley & Sewall 174 inch Fourdrinier machine, "The Marguerite K." has been averaging 58 tons a day in recent months, sometimes going over 60. Incidentally the name lettered on its new Ross hood is in honor of Mrs. Kress, secretary of the company. Through two lines of preparation of pulp with two 16 ft. Biggs rotary digesters, two leach casters, two lines of double-disc Bauer Pulpers, one Impco washer, Trimbey screens and a Hermann Claflin refiner as important process steps ahead of the machine, this new plant is able to process separately and to blend aspen and softwoods or any two different species of wood. Through one line goes aspen—and through the other line, tamarack or jackpine.

The new plant is laid out to facilitate expansion and most equipment was bought with that in mind. The size of the Fourdrinier makes possible a tripling of .009 or even more of .016 liner tonnage.

New Equipment Ordered

More Bauer Pulpers—making a total of eight, doubling of drying capacity on the machine, an extension of the paper mill by 6,000 sq. ft., will substantially increase production in early 1951.

GEO. F. KRESS, President and Treasurer of Green Bay Paper & Pulp Co., Green Bay, Wis., who started in wood box manufacturing and changed over to paperboard.

The Green Bay plant, when recently visited by PULP & PAPER, had achieved a high grade commercial quality of corrugating and was shooting for premium grades beyond any produced. It had a record of around 12 p.s.i. ring crush test for its current production and expected to bring out a premium corrugating of higher test. The bulk of the product of Green Bay's plant is now being sold, the remainder being used at its box plant.

Cold Water Caustic Treatment

Indicative of the way in which the company has gone into this venture, was its recent trials of a cold water caustic soda treatment, which received considerable publicity in the industry publications. As a matter of fact, only one such treatment of the wood chips was run, but this was very successful.

Mr. Kress and his staff are doing first things first—shooting for the maximum production and quality possible with the sodium sulfite fast hot cook. Then they will try the sodium hydroxide treatment, when they have a true standard for comparison of results. Incidentally, the cold water cook, which is simply soaking chips in the rotary digesters, without steam, might some day open up new markets for caustic soda, byproduct of chlorine plants and sometimes almost a drug on the market as a result of the increased bleaching and increased chlorine demands. Green Bay might, at first, blend the cold caustic softened and hot fast-cooked chips.

Wood Preparation

Following is the flow description of the Green Bay plant, obtained by a PULP & PAPER editor at the scene:

Wood comes in 100 inch lengths, by truck and rail. Most of it, being aspen, is from northern Wisconsin. The wood is dumped in a water pond and passes up a D. J. Murray Mfg. Co. jackladder to a standard Allis-Chalmers Streambarker. Passing butt to butt over rolls in this machine, logs are hydraulically barked with a pressure of 850 p.s.i. at nozzles and volume of 650 g.p.m. A 350 h.p. 4-stage

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A reproduction of this incident from the fabulous life of Paul Bunyan—the fifty-sixth of a series—will be sent on request. It will contain no advertising.

GEO. E. MACKIN (left), General Manager, and LLOYD "CURLY" LANG (right), General Superintendent, of Green Bay Paper & Pulp Co.

HUGUENIN "HU" MILLER (left), Pulp Supt., and ROBERT WILKES (right), Paper Supt., Green Bay Paper & Pulp Co.

WILLIAM NELSON (left), Tech. Director, and FRED KRESS (right), who assists his older brother, Pres. Geo. Kress, in cost control and budget work.

Allis-Chalmers pump serves the barker, with a 100 h.p. one-stage Allis-Chalmers pump for booster.

Barked logs are then fed to a Carthage 64-inch 10-knife chipper. No chip screening is found to be necessary because of the high uniformity of chips which results from the multi-knife chipping. There is very little sawdust. And the combination of Streambarker with the chipper is credited with giving long life to knives. They get as much as 130 cords production per knife.

Between the small woodroom and pulp mill are steel chip bins which hold enough chips to run 7 digester cooks. Usual day's run are 9 digester cooks. Raw chip conveyors are Stephens-Adamson Redlers with 13 in. chain running in casings and there are Stephens-Adamson bin dischargers.

The Cook

The two Biggs ordinary mild steel rotary digesters, each of 16 ft. diameter, simply soften the chips—cover to cover cycle of the light cook is now averaging around 5 hrs. 20 minutes. Solvay Process Co.'s light soda ash and Monsanto Santosite (sodium sulfite anhydrous) are both used in the cooks. Strength of liquor is 5.3% of Santosite to 1.3% of soda ash or sodium carbonate.

This solution, which impregnates the chips, is withdrawn and re-used, the cook being made with direct steam. The amount of spent liquor at the end of a cook is very small because it represents only the condensate required during the cooking period. Liquor effluent is small, only about one-fifth of usual amount of spent sulfite in orthodox process per ton of pulp produced.

As previously explained, the same digesters would be suitable for the cold water caustic treatment.

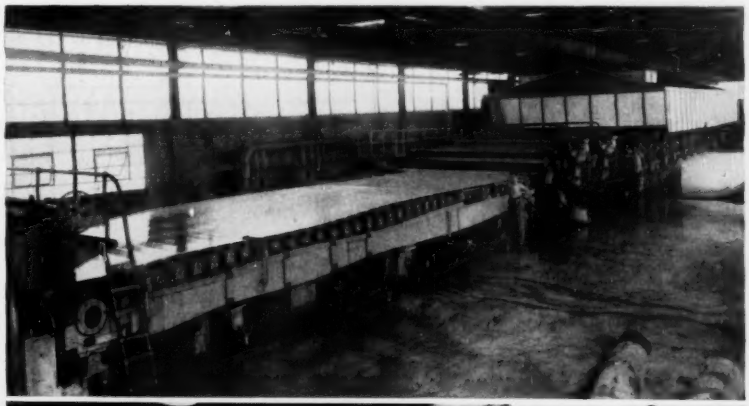
Next are the two leach casters, each of 17 ft. 6 in. diameter and 14 ft. depth. One of the points for discussion in semi-chemical pulping is what size and shape is best for a leach caster, especially where some plants make use of existing blow-pits for this purpose, which may be over-large and not vertical enough for ideal operation.

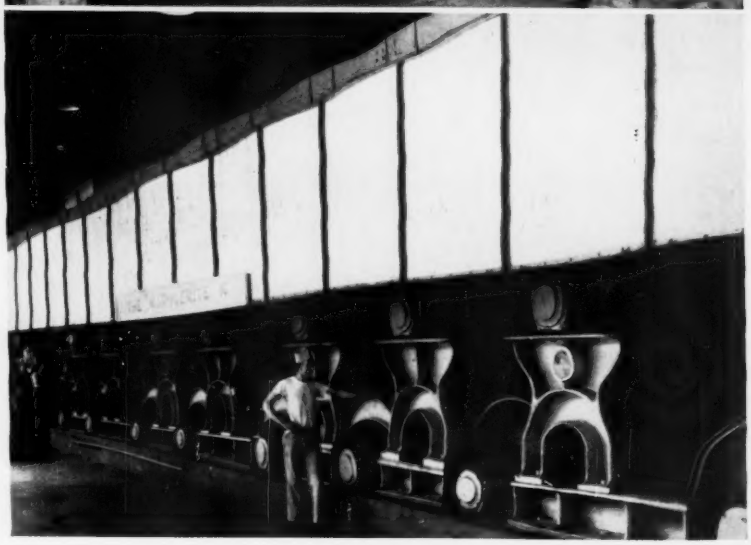
Pulp Preparation

Leach caster mechanisms feed the chips into short screw conveyors, thence to Redler elevators which discharge into horizontal Redler conveyors and so to the improved Model No. 400 Bauer Pulpers with water-cooled bases. Each Bauer is driven by two 150 H.P. Westinghouse custom-built motors—one to each of the two discs per machine. Watercooling of the bases, together with the exceptionally sturdy design, render them free from distortions due to thermal or mechanical causes. The stiffness of these bases is such that it is not necessary to bolt them to the foundation, the machines being set on levelling wedges.

Screw feeders to the Bauers are driven by variable speed D.C. motors and pass

VIEWS OF THE "MARGUERITE K," Bagley & Sewall 174-inch Fourdrinier machine at Green Bay Paper & Pulp Co., named for Mrs. George F. Kress. She is Secretary of the company which he heads. It has a 100 ft. long wire, a standard two-compartment headbox designed for 800 f. p. m. Foxboro tachometers are used for speed control. Below is closeup of paneled Ross Engineering hood for Ross vapor recovery system and of the 5-ft. diameter dryer rolls—there are 18. They have plain bearings and Vickery doctors on some.



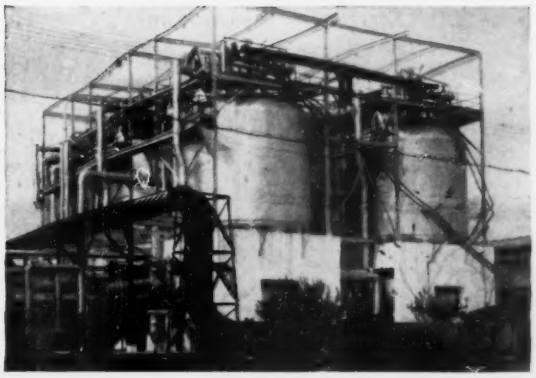


SULPHUR

*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

*SUPERHEATED WATER . . .

Mining operations are most successfully carried out if the water pumped into the sulphur deposit is heated under pressure to a temperature of about 320° F. For large scale mining, enormous quantities of water are required, so, a primary requisite is an adequate supply of suitable water and an efficient power plant in which to heat it.



To insure a continuous supply of water at Newgulf, it is the practice to use river water pumped in time of flood or full flow and stored in large reservoirs. This supply is supplemented, when necessary, with well water. Water so obtained is seldom suitable for use in boilers or mine water heaters without being treated first because of natural salts in solution. Softening by chemical treatment is necessary to prevent deposition of scale on boiler tubes and hot water lines.

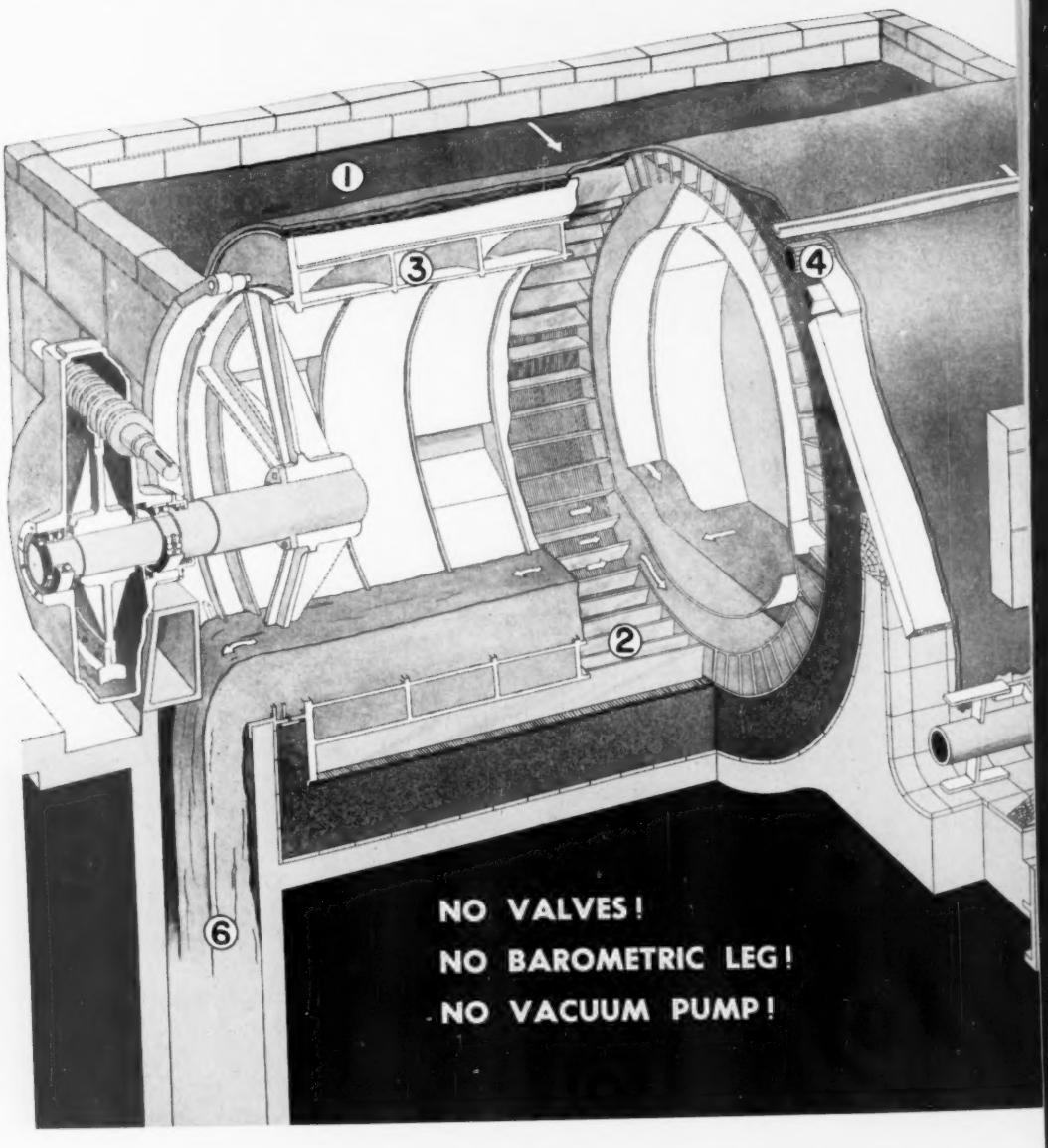
Loading operations at one of the huge vats of Sulphur at our Newgulf, Texas mine. Such mountains of Sulphur are constantly being built at our mines, from which shipments are continually made.

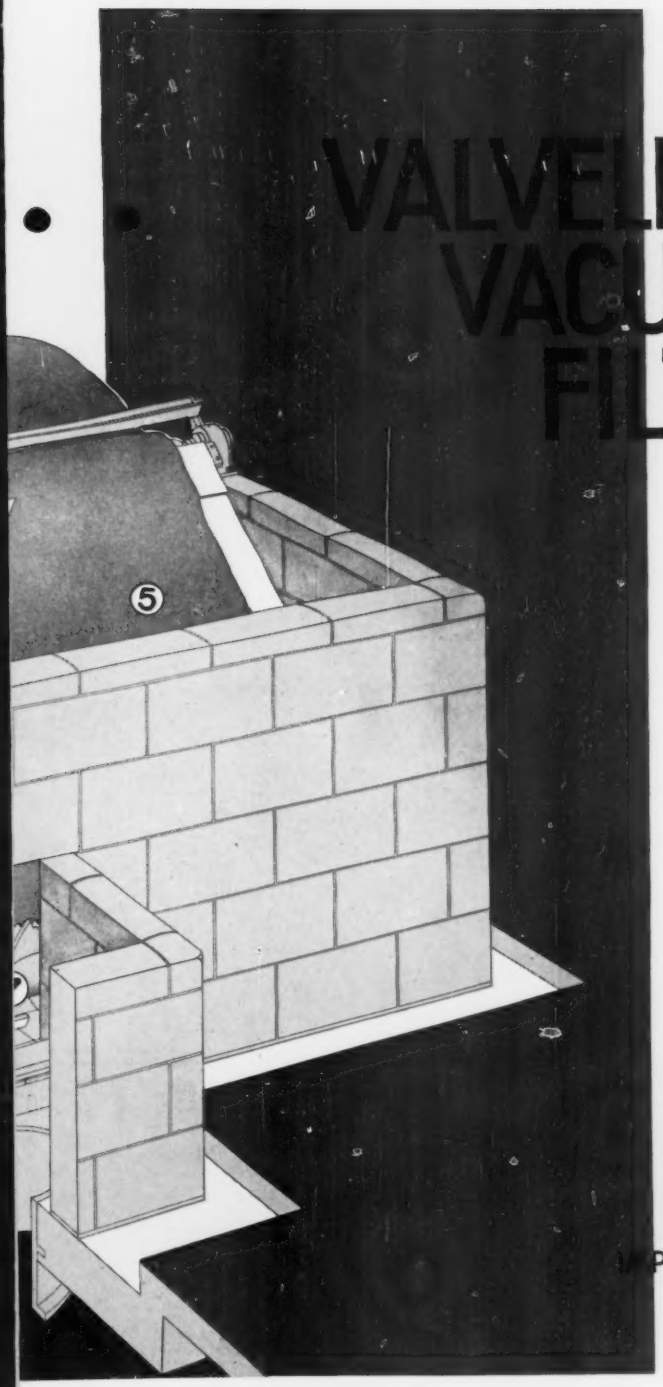
TEXAS GULF SULPHUR CO. INC.

75 East 45th St. New York 17, N. Y.

Mines: Newgulf and Moss Bluff, Texas

HERE IS THE NEW.





VALVELESS VACUUM FILTER

1—PULP INLET
2—DRAINAGE CHANNELS
3—BAROMETRIC PASSAGES
4—TAKE-OFF ROLL
5—DISCHARGED SHEET
6—FILTRATE DISCHARGE
7—REPULPER

This screen room decker needs no elevation for barometric leg, yet gives excellent stock rewashing by showers and higher discharge consistencies. Building elevations can be substantially lower.

This machine features "See Level Vat" —ability to handle variable flow without manual attention—Built-in Barometric Legs—High density pulp discharge at 10-12% A.D., or 15-20% with extractor and press rolls. It can be floor mounted or pier mounted and is adaptable for tile vat construction.

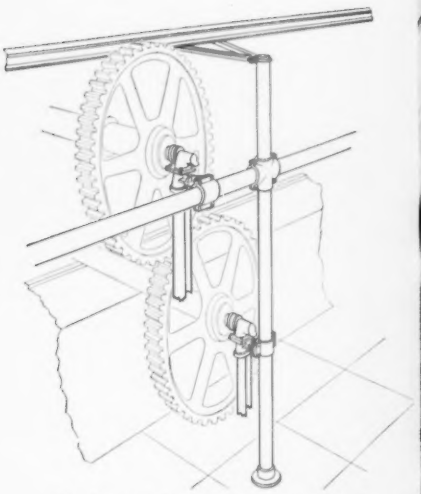
The Valveless is built in all steel or all stainless.

Impco

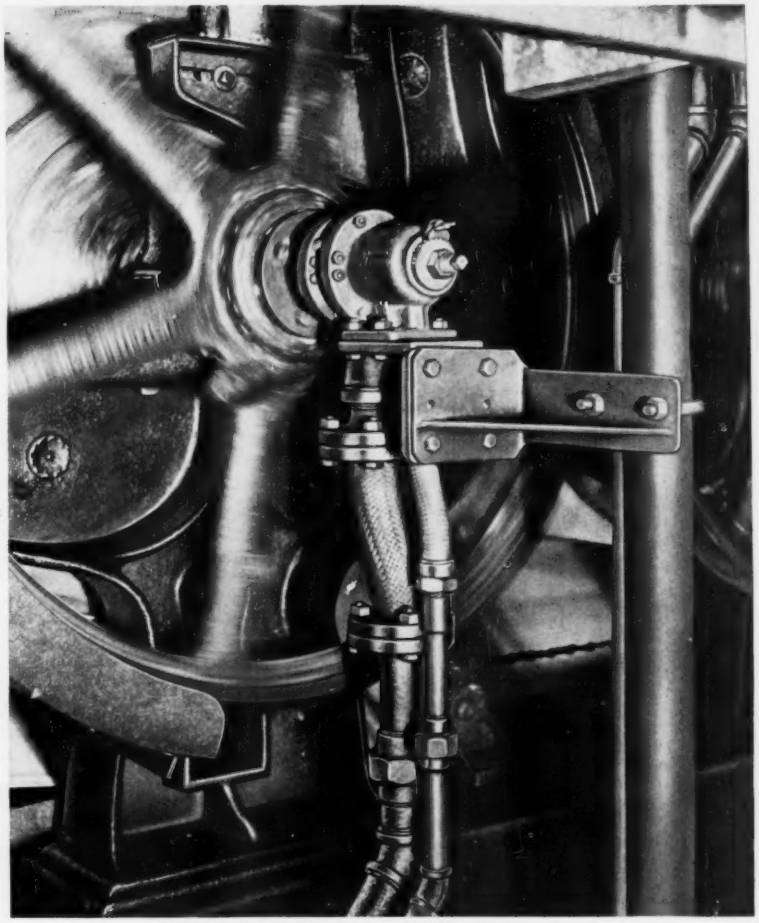
IMPROVED PAPER MACHINERY CORPORATION

NASHUA NEW HAMPSHIRE

J-13



The Puseyjones Improved Steam Joint on Dry Part having open-type gearing. This requires special outside pipe structure which serves to maintain exact alignment and minimum power consumption at all times. The flexible pipe connections incorporated in the steam and water piping compensate for any expansion or contraction in the supply headers and branch connections. In case of drop siphon, this may be adjusted to suit speed conditions by means of an extension as shown in end of steam joint.



New Life for Old Dry Parts

(A Case History)

In a prominent northern mill having six old machines, a rebuilding program was undertaken requiring an increase in speed and production. As additional power was limited, a trial installation of four Puseyjones Steam Joints and Siphons was made and results checked carefully.

So satisfactory were the economies obtained in power reduction and maintenance, combined with more efficient evacuation of condensate, that 64 additional units were installed to completely equip two machines.

This was later followed by an installation of 85 Puseyjones Steam Joints and Siphons to completely equip two more machines.

These four "old" machines are now operating at even higher speeds than were anticipated in the rebuilding program.

If you are interested in this subject, Puseyjones suggests a thorough study of the "Steam Joint Bulletin". Write for your copy today.

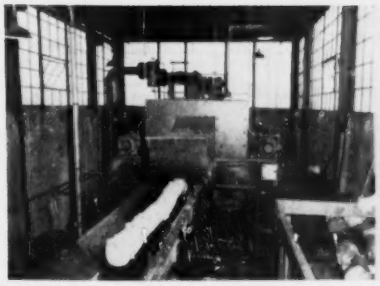
THE PUSEY AND JONES CORPORATION

Established 1848. Builders of Paper-Making Machinery

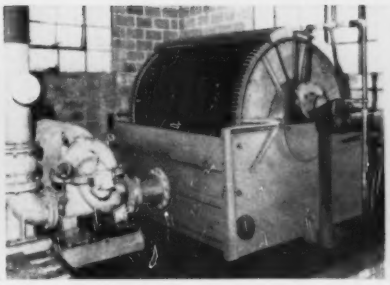
Fabricators and Welders of All Classes of Steel and Alloy Products

Wilmington 99, Delaware, U.S.A.

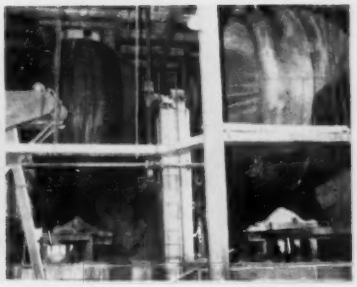
THE SIGN OF TRADE MARK SUPERIOR QUALITY



EQUIPMENT AT GREEN BAY PAPER & PULP CO.: ALLIS-CHALMERS Streambarker, a standard type, which debarks mostly poplar and also jackpine and tamarack.



GREEN BAY FOUNDRY & MACHINE CO.'s North-type screen for treatment of raw water taken directly from Fox River.



TWO BIGGS ROTARY DIGESTERS of milled steel, each 16 ft. diameter, which average 5 hr. 20 min. cooks with Solvay soda ash and Monsanto Santosite.

the softened chips over built-in permanent magnetic separators which remove foreign magnetic material that might have been accidentally included. Excess chips are returned by the Redler conveyors to the leach casters from which they came. Thus, there is no build-up of chips in the conveyors.

The Bauers are arranged in two lines, three in one line can be used on jackpine or other softwood, while the two in the other line are defibering aspen which is somewhat less resistant to fiberizing. Three more Bauers, new model No. 410, were being delivered in December.

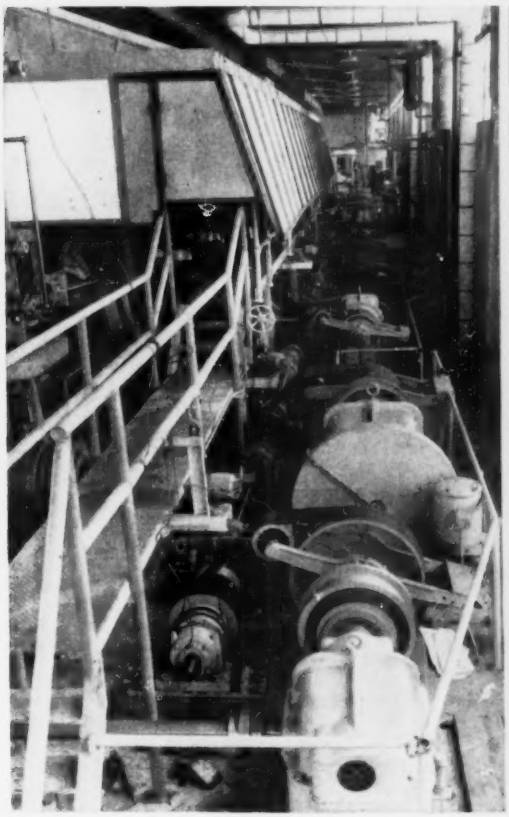
The purpose of the Bauer treatment is to reduce the softened, cooked, but still whole chips to fibers and one of the factors which determine quality of the pulp is consistency between the defibering plates. A Fisher-Porter Flowrator meter regulates the quantity of water fed with the chips to the Pulpers, maintaining a uniform optimum consistency in the pulping area. Short-fibered hardwood used is not completely defibered for .009, thus retaining exceptional rigidity.

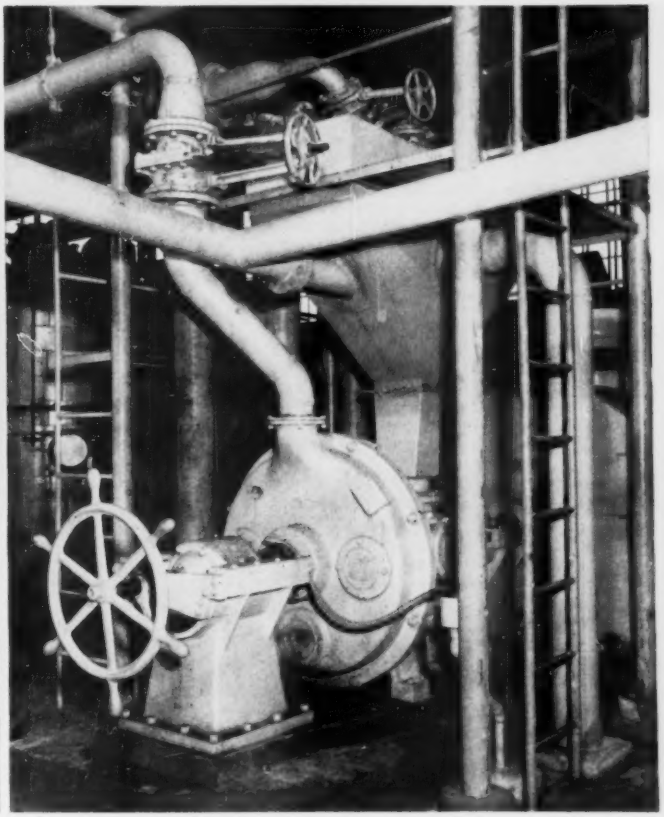
This process requires very close control in respect to uniform cooking and refining and control tests of freshness and consistency are made every 15 minutes during operation.

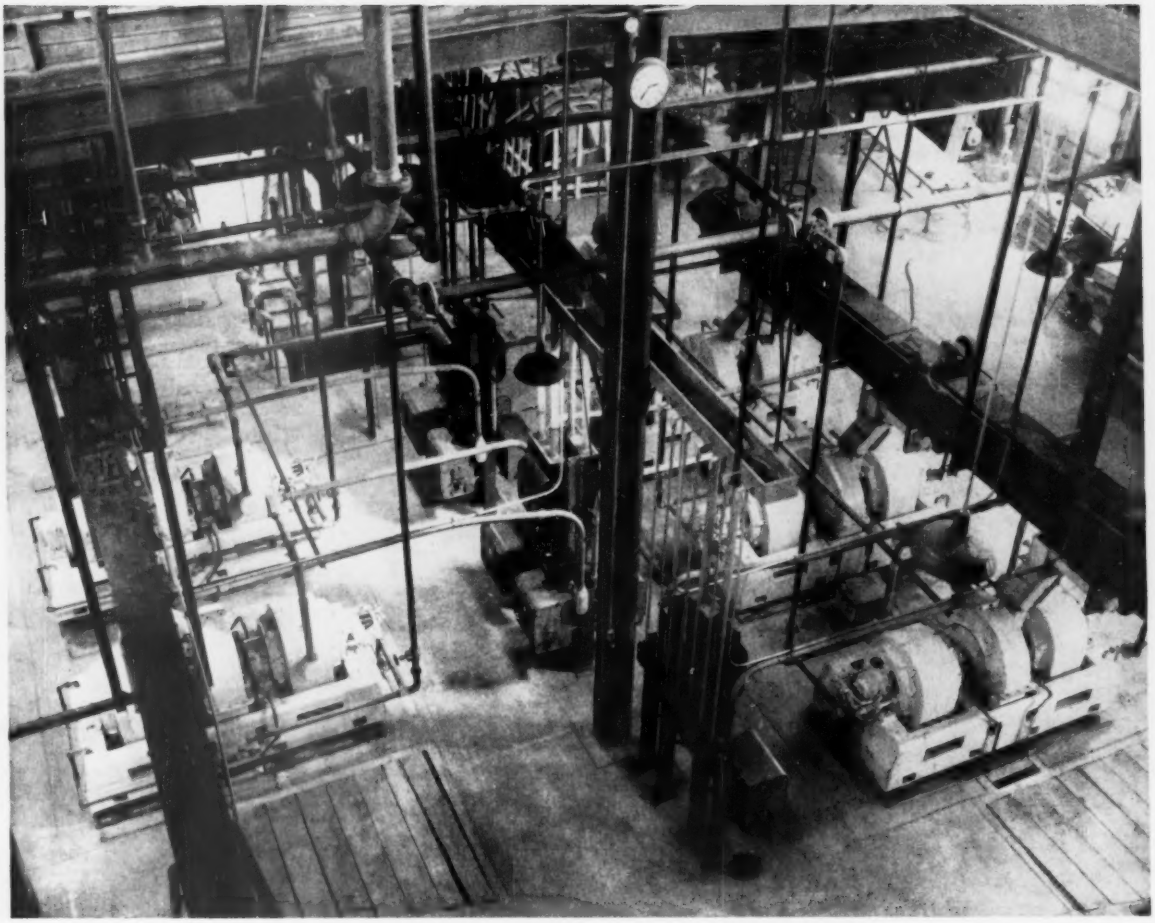
In the present pulp mill building there is ample space and accommodation planned for expansion. There were two reserve footings on each line ready for additional Bauers and on each line is another leach caster tank that can be used for higher

BACKSIDE OF GREEN BAY MILL's paper machine is shown at left. The Bagley & Sewall drive shown here consists of Fawick Airflex clutches and V-Belt drive to line shaft, with Allis-Chalmers vari-pitch sheaves for draw adjustment. This gives finer adjustment, more quiet and lower cost drive arrangement than cone pulleys.

AT RIGHT IS HERMANN MFG. CO'S CLAFLIN REFINER which handles rejects from screening which pass back from here to paper machine stock chest.







LOOKING DOWN ON FIVE BAUER TYPE NO. 400 DOUBLE-DISC PULPERS at Green Bay Paper & Pulp Co. Three Bauers in one line are on jackpine and tamarack; two Bauers in the other on poplar. They are 36 in. size with watercooled bases and for each Bauer machine there are two 150 hp. Westinghouse custom built motors—one driving each disc. One Bauer is equipped with a Fischer-Porter Flowrator to amount of water fed between disc plates. Three more Bauers—new Model No. 410's—were to be delivered in September and to be installed in wood-covered spaces.

volume of production.

Stock from the Bauers passes to concrete chests by screw conveyor and is then pumped with Shartle Bros. Agiflow pumps to a six by eight ft. diameter Improved Paper Machinery Co. washer. On each stock line is a DeZurik consistency regulator of pressure type and there are stock meters on each line.

DeZurik and Crane valves are both used extensively in the pulp mill and Yarway valves are used on the digester. From the washer, last process step in the pulp mill, stock is pumped underground to the paper mill building and the machine chest.

The Paper Mill

The flow in the paper mill is from stock chest to DeZurik stock consistency regulator, thence to the Gould's fan pump, thence to two Trimbey screens and finally to headbox. The rejects from screening go to a Hermann Claflin Refiner and after treatment here pass back to stock chest for rerouting to machine.

"The Marguerite K," the 174-in. Bagley & Sewall machine trims 161 in. and carries a 100 ft. wire. This is one of the longest wires for this type of production, the idea being to give ample wire for drainage characteristics and to allow higher speeds later. It is actually running at a fairly high freeness now. The dryer capacity at present is the controlling factor in holding machine speed down to around 300 f.p.m. The headbox is designed for around 800 f.p.m. This is a standard two-compartment Bagley & Sewall headbox with two holy rolls, one in the second compartment, and a smaller one just ahead of the slice. The slice is standard, with adjustable lip.

Following the Fourdrinier which is equipped with a 25-inch suction couch, are two plain presses with Stowe-Woodward Stonite-covered top rolls. Bottom rolls are rubber covered by Manhattan Rubber Co. There is a Vickery felt conditioner on each press felt. There are two Nash vacuum pumps. An exceptionally high wet press pressure is carried on the presses in order to obtain a maximum bonding strength between fibers. Press rolls have Lodding doctors. A new suction press is now being added.

The 18 dryers are in two sections. They are 5 ft. diameter rolls. There are no dryer felts used at present. Bearings are of plain type and there are Bird Vickery doctors on some of the dryers.

With 18 more dryers being installed, the drying capacity is being doubled. A J. O. Ross Engineering vapor absorption system is being added, also.

Bird Machine Co. doctors are on all the rolls of the Bagley & Sewall 9-roll calender stack. On the stack only one light nip is used, with no pressure. The king roll is 20 tons; the queen roll, 9 tons; the others, 6½. They are of centrifugally cast steel. A drum reel follows.

Then comes a Pusey & Jones two-drum winder, wider than the machine, which was rebuilt and modified to wind outward, instead of inward, for greater safety. It is equipped with a rider roll and will wind a 60 in. diameter roll.

In general, the consistency of stock on

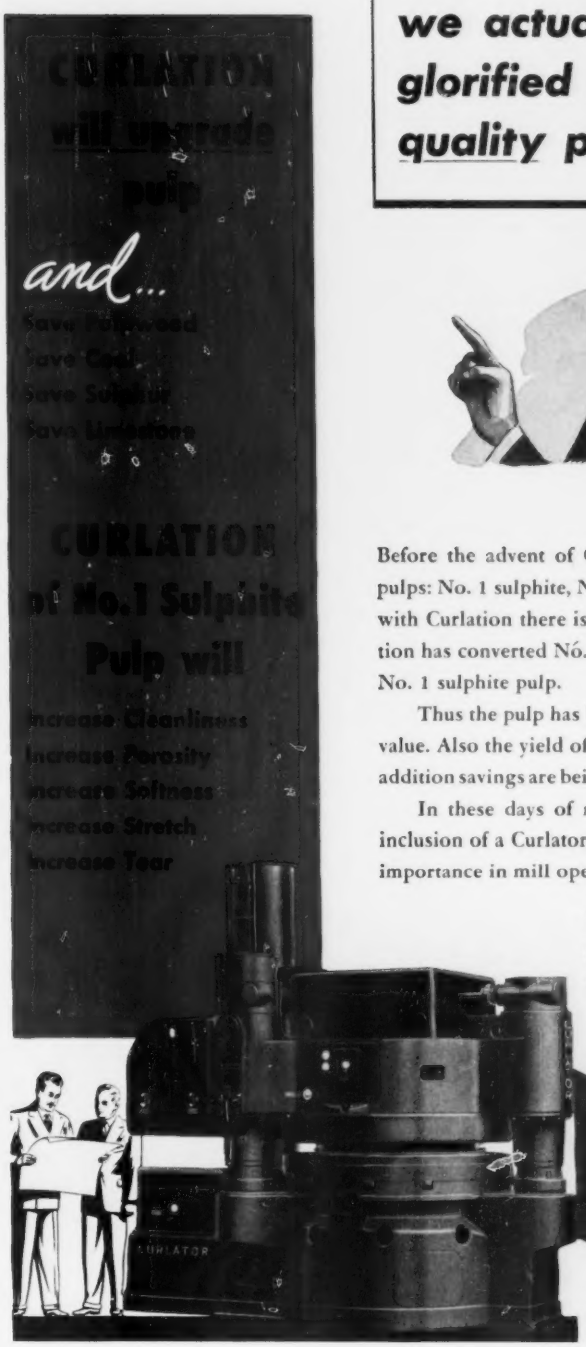
Now, with our Curlator we actually transform glorified screenings into quality pulp!

Before the advent of Curlation there were three grades of pulps: No. 1 sulphite, No. 2 sulphite and fine screenings. *Now* with Curlation there is only *one* grade—*No. 1 sulphite.* Curlation has converted No. 2 sulphite and fine screen rejects into No. 1 sulphite pulp.

Thus the pulp has been upgraded with an increased sales value. Also the yield of No. 1 sulphite has been increased. In addition savings are being made in coal, limestone and sulphur.

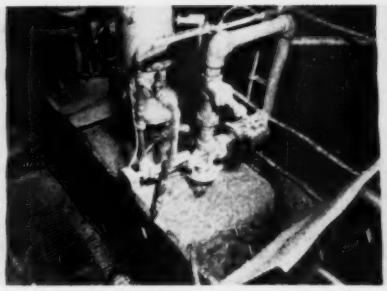
In these days of rising costs and material scarcity the inclusion of a Curlator in your production line is of topmost importance in mill operation.

WRITE today for more detailed information on what a Curlator can do for you.

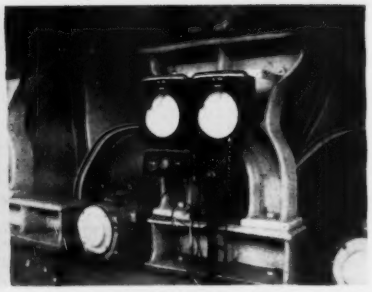


*T.M. Reg.— Curlator Corporation, Rochester, N. Y.

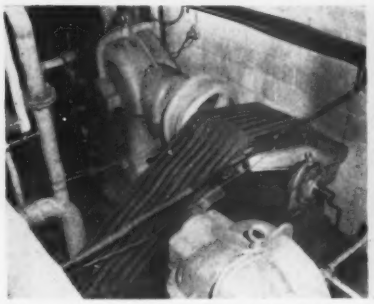
THIS IMPCO WASHER 6 x 8 ft. diameter, is last step in the pulp mill with stock supplied by SHARTLE BROS. Agiflow pumps.



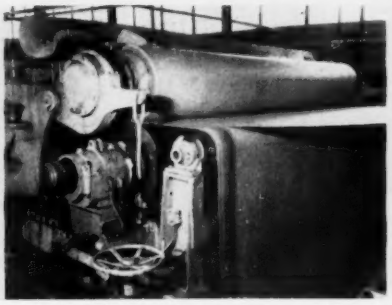
DEZURIK SHOWER CO. supplied stock consistency regulators on both stock lines in pulp mill and also ahead of Goulds fan pump in paper mill.



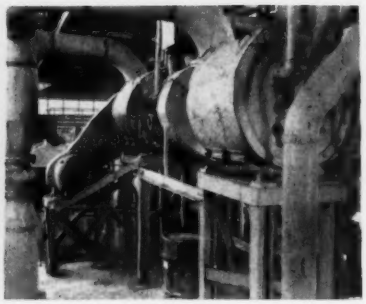
FOXBORO CONTROLS on paper machine are shown here on dryers, for temperature. Also Foxboro tachometers control machine speed.



EQUIPMENT AT GREEN BAY PAPER & PULP CO.: PAPER MACHINE DRIVE CLOSEUP showing Fawick Air-Flex Clutch and V-Belt drive and Allis-Chalmers vari-pitch sheaves for draw adjustment.



STOWE-WOODWARD supplied Stonite covered top rolls for the two plain presses. Bottom rolls are rubber-covered by MANHATTAN. Rolls have LODDING doctors.



TWO TRIMBEY SCREENS are ahead of the headbox in the paper mill, with rejects going to Claflin refiner. EQUIPMENT AT GREEN BAY PAPER & PULP CO.:

the machine is comparatively high, running between 9/10 to 1% consistency in the headbox.

A Foxboro tachometer is used for speed indication and Foxboro instruments are on the dryers for temperature control. There is a Foxboro liquid level gauge for the stock chest.

The machine is driven by a twin Ames reciprocating steam engine, with a nominal rating of 270 h.p. In event of the expansion allowed for, a steam turbine would be indicated. The Bagley & Sewall drive on the machine includes Fawick Airflex clutches and V-Belt drives to the line shaft, with Allis-Chalmers vari-pitch sheaves for draw adjustment. This drive arrangement was selected as an improvement over cone pulleys on the basis that it gives a finer adjustment, is very quiet, and is low cost. The V-Belts eliminate slippage.

The Pusey & Jones winder is driven by an Allis-Chalmers variable speed motor.

There is a Ross Engineering hood over the dryer sections.

Water and Power

All of the excess water from the paper machine is piped back to the Impco pulp washer, thereby reducing to a minimum the fiber effluent of the mill.

A raw water system for the mill takes water directly from the Fox River through a culvert. It is then elevated from a cistern by means of a Peerless mixed flow pump to the Green Bay Foundry & Machine Co.'s North-type screen. Service pumps draw water from the screen vat to the Streambarker, Bauer mills and pulp washer. Fox River water used here is fairly turbid.

In the power plant are two 500-h.p. Babcock & Wilcox boilers, 30,000 lbs. each per hour, operating at 175 lbs. pressure.

Personnel in Company and Mills

George F. Kress, president and treasurer of the company, graduated from the University of Wisconsin in 1925 in business administration. He was with H. C. Hopson in New York City for a year and then started in wooden box manufacturing in Green Bay, converting to paper containerboard in 1934. James Jones is vice president of the company and Mrs. Kress, for whom the machine is named, is secretary. W. P. Daniels is the purchasing agent. Fred Kress, also a University of Wisconsin alumnus, is assisting his brother, George, in cost and budget control.

George E. Mackin, who had been a consultant during early operations at Green Bay, on loan from the U. S. Forest Products Laboratory in Madison, is the general manager. The Lab's Pulp & Paper Division, headed by Gardner Chidester, did a lot of groundwork for this mill, as Mr. Kress so willingly concedes. Dr. John N. McGovern especially did much of the preliminary pulping research, whose reports over two years ago on the Green

(Continued on Page 101)

PHOTOS by a PULP & PAPER Editor at Green Bay: Top left: Stacked wood in 100 in. lengths; Top right: Power plant, housing two B & W 500 hp boilers. Lower left: Steel chip bins between pulp mill, on left, and wood room. Each bin holds 7 cooks. Lower right: D. J. Murray jackladder and Allis-Chalmers Streambarker plant.

Here's wet strength where it's needed most...

in wet paper towels

PAREZ® Resin 607 Imparts Dependable Wet Strength

How many hundreds of paper products come in contact with moisture, or, worse—*water*, sometime in the course of their service life?

The answer to this question demonstrates the need of imparting wet strength to a wide variety of papers, for wet strength can make all the difference between satisfactory service and complete disintegration of paper when moisture conditions are present.

Paper towels, for instance, stand up satisfactorily to moisture when treated with PAREZ Resin 607 for *dependable* wet strength. Prepackaged fresh-produce bags, wiping "cloths", table "cloths", napkins, frozen-food wrappers, map and blueprint papers and numerous other paper products serve better, last longer—when wet-strength treated.

Just consider these factors when determining how essential PAREZ Resin 607 is in the manufacture of *your* papers . . . and how it can contribute to customer satisfaction and greater sales volume. Our Technical Service Representative will gladly assist you. Write today.

New uses mean new markets for *wet-strength* paper towels. Consumers use them for

- drying dishes
- wiping greasy pans
- draining fried foods
- cleaning stoves
- drying silverware
- cleaning sinks
- cleaning cars

ALWAX* Sizes • WAXINE® Sizes • Rosin Size • PAREZ® Resins
AZITE* Liquifier 900 • Synthetic Resins • Casein • Alum • Sulfonated Oils • Fillers • Defoamers • Soda Ash • Caustic Soda • Acids • Clays
AEROSOL® Wetting Agents • CALMICRO* Calcium Carbonate
Sodium Phospho Aluminate and other Paper Chemicals. *Trade-mark

Sales Offices: Boston • Philadelphia • Pittsburgh • Baltimore
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AMERICAN Cyanamid COMPANY
INDUSTRIAL CHEMICALS DIVISION, DEPT. PP1
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

SAFETY CONFERENCES

196 At Record Breaking Seattle Session

Camas Comedy Skit Teaches Lessons

Proof of the pudding—that the Pacific Coast's unique series of labor-management safety conferences in the pulp and paper industry are really paying off:

For the fourth successive year since they started, the very carefully-checked and all-inclusive accident frequency rates in all mills of three Pacific Coast states have again been pushed downward.

The fifth annual series of California, Oregon and Washington state conferences are now history, acclaimed the most successful since the idea that the AFL unions and management could work together in saving lives and limbs bobbed up in a union meeting back in '46 in Stockton, Calif. One big reason for this is that the Pacific Coast lost-time accident rate has been slashed in just four years by more than two-thirds! From 37 per million man-hours in 1946 to 8.6 for nine months of 1950.

And this year, for the first time, as we reported last month, the British Columbia mills and unions have started their own labor-management conference.

In the Coast state series, two new co-chairmen made their bow. Sidney W. Grimes, secretary of the Coast Association of Pulp & Paper Manufacturers, and Al E. Brown, vice president of the AFL Paper Makers, took over the co-pilot seats which had been held since the outset of the conferences by Otto R. Hartwig, general safety supervisor, Crown Zellerbach, and John Sherman, vice president of the AFL Pulp, Sulfite & Paper Mill Workers. The Brown-Grimes team had good wishes and cheers from many speakers for "carrying on the torch."

The Berkeley, Calif., meeting in October, hailed as the best one ever in that state, drew about 75 delegates. About 60 were gathered in Eugene, Ore., as this issue went on the press. But the biggest conference of all time was the one put on in Seattle Nov. 16-17 by some 20 Washington mills with 196 delegates registered.

1950 WINNERS OF SAFETY TROPHY IN WASHINGTON (l. to r.): OSCAR KRETSCHMAR, General Mgr.; ERNEST LIEDKE, Boatsman; JULES HENDRICKSON, Backtender; LEE STULLER, Machinetender, all of Container Corp. of America board mill, Tacoma, Wash. Seated, AL E. BROWN, Int. Vice Pres., Paper Makers Union, Portland, Ore., who was co-chairman of meeting.

AT WASHINGTON STATE Safety Meeting (top row l. to r.): Lawson Turcotte, Pres., Pac. Coast Assn. of Pulp & Paper Mfgrs., and Pres., Puget Sound Pulp & Timber Co.; Oscar Kretschmar, Gen. Mgr., Cont. Corp. of America, Tacoma; F. J. (Bill) Herb, Pres., Pac. Coast Paper Mills of Wash., Bellingham, who was Banquet Toastmaster; Al E. Brown, V. P., Paper Makers Union, and Co-Chairman of Coast meetings; Ivor D. Isaacson, Los Angeles, Vice Pres. Pulp, Sulfite & Paper Mill Workers; Miles Murray, Crown Z, Portland, Ore., perennial untitled "chairman" of arrangements.

Lower row (l. to r.): Robt. M. Gilmore, Gen. Safety Supervisor, Rayonier mills, and State Chairman; S. W. Grimes, Co-Chairman for management of the meetings and Sec., Pac. Coast Assn. of Mfgrs.; Robt. H. Harlin, Pres. Seattle City Council; A. M. Johnson, Director, State Dept. Labor & Industries; John Shaughnessy, State Supervisor, Industrial Insurance; R. J. McLean, State Supervisor of Claims.

A Challenge to Labor Delegates

And immediately there was a challenge flung to the labor group for 1951 when, in one of the opening addresses, President Lawson Turcotte, of the Coast Association of Manufacturers, called on labor and management delegates to stand—revealing that management was in a slight majority.

Revealing how seriously management is taking safety in Washington, nearly every mill sent its manager and key superintendents and engineers, as well as personnel and safety supervisors, and there was also a scattering of presidents and vice presidents.

The big news for the Washington mills was that their lost-time accident frequency rate was pushed down to a record low of only 8.5 per million man-hours for the first nine months of 1950, compared with 12.12 for all of 1949 and 29.7 in 1946. And this compares with a U. S. Bureau of Labor Statistics figure of 16.4 for 496 U. S. mills in 1949 (about half in the country) and the National Safety Council's 11.62 figure for 1949 which, however, was for only 175 reporting mills.

Tacoma Mill Wins Trophy

One high spot of the Seattle meeting was when, at the final banquet in the New Washington, Ed Sorger, state supervisor of safety, presented the winged governor's trophy to Container Corp. of America (California Container Corp. subsidiary) of Tacoma, whose 30 employes

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had operated since Jan. 1, 1950 without a lost-time accident through October. In doing so, Mr. Sorger said the pulp and paper mills had "set an example for all other industries of the state."

Oscar Kretschmar, 45-year old Pittsburgh-born general manager of the Tacoma mill, accepted the trophy and called to the platform his beaterman, Ernest Liedke; machinetender, Lee Stuller, and backtender Jules Hendrickson. This mill, bought by CCA from Standard Carton Co. in Dec. 1946, makes 20 tons a day of liner, chip and boxboard on a 60 in.-5 cylinder machine. All converting is done in Seattle. Last year Longview Fibre won the trophy.

F. J. "Bill" Herb, president of Pacific Coast Paper Mills, Bellingham, Wash., was toastmaster at the banquet, and Rev. William Hills of Victoria, was a speaker.

"The Play's the Thing"

There is no doubt the other high point of the conference was a one-act comedy entitled "Accident Investigation" in which supervisors and workers at the Camas mill of C-Z proved to be first class amateur Thespians. While the audience roared with laughter over the typical antics and arguments of a mill safety committee, the skit at the same time forcefully dramatized the real benefits that can be gained from constructive thinking and thorough investigation in connection with mill accidents. The art of the theater was used to put over a message much more convincingly than it could have been done in any number of speeches.

Gus Lorenz, superintendent of the Camas tissue division, was excellent as the typical supervisor who took too much for granted in what he expected of his crew; Tom Shurm, machine backtender, was wonderful in his imitation of the "loudmouth" who is too often found on a mill committee; Jack F. Robertson, playing his real life part of safety supervisor, did a masterful job of keeping them all from wandering way off from the logical objectives of an investigation.

Audrey M. Fisher, safety inspector at Camas, played the role of "Joe Zilch," who strained his back while up-ending a bale, and he proved a typical unenthusiastic victim with a one-track mind —i.e., he wouldn't have been hurt if they gave him a 12-inch platform for the bale, he said repeatedly. O. T. Smith, maintenance supervisor, and Calvin Baker, of the head shop, were the "level heads" on the committee, and Bub Hetherington, pushing a broom around the stage, provided comic relief.

It turned out there was not just one reason, but several, why Zilch was injured. He failed to get help on the bale as instructed, the foreman had failed to make him write his suggestion for a platform as required, and the superintendent had tried to coddle him but at the same time mis-assigned him to a job. Mr. Robertson, therefore, concluded all three were to blame.

Reg B. Haight, training director at Camas, summed up the lessons of the performance at the conclusion. Mr. Grimes stressed the big job ahead if investigations averaged a half-hour as this one did, with 30 to 50 minor injuries recorded on the average to every disabling accident, but he emphasized that such investigations were necessary in order to achieve their goal.

Keynote of Conference— No Grievances

At the opening session, Mr. Grimes and Mr. Brown both set the keynote for the meeting by stressing that these conferences have been succeeding "by staying away from plant level problems—meaning grievances—and refraining from personalities"; by discussing incidents and problems in the abstract.

Robert H. Harlin, president of Seattle's City Council, welcomed the delegates for the city, and, recalling his own long career in labor and industrial affairs, said "the 'good old days' you hear about are a myth—there were only evil old days."

Speaking for management, Mr. Turcotte promised full cooperation of the association and said safety has added dollars to employes' pay checks and he praised the conference for turning back the "know-how" of safety to the plants.

For labor, Ivor D. Isaacson, of Los Angeles, v. p. of the PSPMW union, who subbed for Mr. Brown as chairman in California, praised that meeting as the best ever held there, and emphasized the importance of safety in this "period of emergency and speed."

A panel on workmen's compensation followed, chairmanned by Mr. Hartwig, with A. M. Johnson, director of the state labor and industries department and his staff explaining the "unlimited aid" Washington laws which cover 340,000 workers earning an average of $1.69 an hour.

Safety Observations by Delegates

Don Osborne, personnel and safety supervisor at the Port Townsend C-Z mill reported progress in reducing Washington's frequency rate in the afternoon session. He said figures indicated 2,000 workers would have been injured if it had not been for the safety conference work since 1946.

L. O. Fox, Fibreboard mill manager in Sumner, credited changing attitudes with the improved record in his mill—they look on safety now "as part of the job." Mr. Fox said they learned to work better with others; conducted better meetings; understood objectives better and so did a better job, and found that "we all have the same wants and desires."

For the unions, Nate Johnson of Longview, stressed importance of "tag out" systems in electric switchoffs; A. Gebhardt of Port Angeles "earmarked" three "E's"—Engineering, education and enthusiasm; William Thomas of Everett urged making the new employe safety conscious; James Edinger of Hoquiam talked of his mill's program.

Don Felthous, plant engineer, Weyerhaeuser, Longview, urged interest in "your fellowman's welfare" and said guards, nonskid floors and handrails were not enough—workers should look out for the safety of the other fellow, too, although sometimes it took diplomacy or courage to speak up.

"Don't Blame Machines"—Gilmore

On the final day, Robert M. Gilmore, general safety supervisor for the Rayonier mills, said that after investigating 692 accidents in this industry he had concluded that more time is lost in mills by workers who fail to follow simple instructions than through injury by machinery. Mr. Gilmore was the state chairman for the meeting, responsible for the program.

The Camas skit, a speaker on protections against atomic attack, and a safety movie, concluded the conference.

Oregon Meeting Reveals Big Reduction in Accidents

About 60 representatives of management and labor in seven Oregon mills attended their 5th Annual Labor-Management Safety Conference Dec. 7-8 in Eugene, Ore. The pattern of sessions and subject matter followed that of the Seattle meeting. A report revealed for ten months of 1950 Oregon lost time accidents were knocked down to 7.12 per million hours, greatest reduction since the joint meetings started.

The Camas mill actors, more experienced, again gave their skit on an accident investigation, as in Seattle.

Howard Morgan, manager, Pulp Div., Weyerhaeuser Timber Co., spoke for management, and John Sherman, vice president of the Pulp, Sulfite Workers, for labor. J. O. Julson, manager of the Springfield, Ore., mill for Weyerhaeuser, was dinner speaker. S. W. Grimes and Al Brown again served as co-chairmen. Program chairman was George LaHusen, safety supervisor, Crown Z, West Linn, Ore.

Denman on Crown-Z Executive Committee

Announcement has just been made of the appointment of Don S. Denman (in picture) for the past 13 years vice president of Crown-Zellerbach Corp. in charge of timber and forestry operations in the Pacific Northwest to the company's executive committee in San Francisco, where he will make his headquarters after January, moving from Seattle.

The board of directors thought it advisable to bring an official of Mr. Denman's wide experience in logging and forest management to the executive committee because of the increasing importance of wood supply and sustained forest yield management in the company's timberland holdings which include 500,000 acres in eight managed tree farms.

After logging for Smith Powers Logging Co., Coos Bay, Mr. Denman served in the Army in World War I. After the war he logged for several lumber firms and in 1926 Mr. Denman joined Crown as logging superintendent at Cathlamet, Wash. He became logging manager, moving to Seattle in 1934. He was appointed a vice president in 1937, and director in 1942.

REORGANIZATION AT RAYONIER

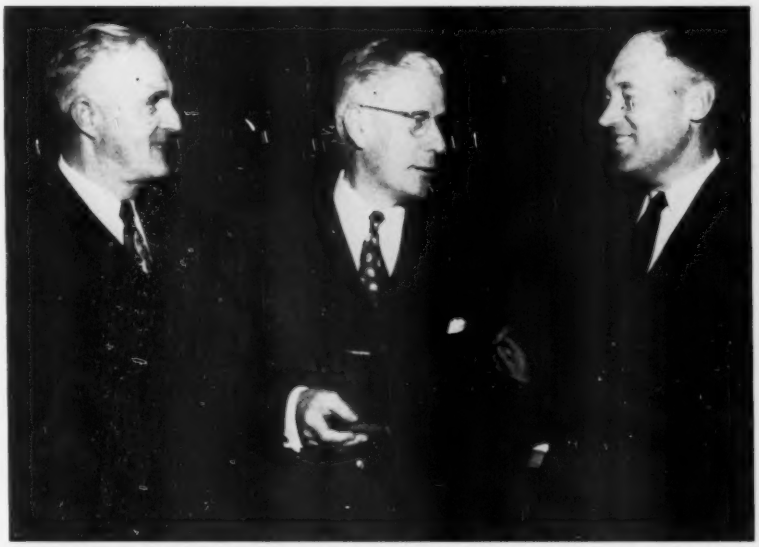
Reorganization of Rayonier Incorporated was moving smoothly toward completion in December, following a meeting in Chicago of top mill and headquarters personnel with William G. Reed (shown in picture) of Seattle, acting as chief operating executive pending selection of a president to succeed Edward Bartsch, whose resignation became effective Nov. 14.

Mr. Reed, who is president of Simpson Logging Co., pioneer Pacific Northwest timber organization, could not say at that time who would be president of Rayonier. He emphasized, however, that his present capacity in the widely known pulp company was temporary. He had, Mr. Reed explained, accepted the interim responsibilities only until a man for the presidency was selected by the board, and at that time he plans to resign his operating duties. It is expected that he will remain as a member of the board and chairman of the executive committee.

To meet Rayonier executives who gathered in Chicago and to outline to them general policies, Mr. Reed interrupted an itinerary of visits to customers with Dr. R. M. Pickens, vice president in charge of sales. From New York headquarters the following, in addition to Dr. Pickens, attended the Chicago meeting: R. L. Lingelbach, secretary; L. G. Wilson, treasurer; R. E. Erickson, vice president; Charles C. Conrad, administrative director; and William L. Goudy, director of public relations. From the West came Vice President W. E. Breitenbach and managers and executives including James Sheehy, George Cropper, Morton Houston, John Sullivan, Lyall Tracy, John Gray, Arthur Parrett and Paul Schlosser; and from the South, Manager Fred Doherty from Fernandina, Fla.

Interviewed by PULP & PAPER, Mr. Reed expressed great confidence in Rayonier's immediate and long-pull future in the industry. Asked about any possible plans for expansion or improvement at the mills, Mr. Reed replied "We are closely tied with a growth industry and you can say we certainly will continue to grow along with it." He planned a tour of the west coast mills as in late December he embarked for Seattle to spend the holidays with his family.

Mr. Reed and other spokesman for Rayonier stressed that election of new officers and board members at the Nov. 14 directors' meeting in New York reflects a stronger participation in company affairs of operational experience, and pointed out that the elections seated men long identified with Rayonier. Charles Blyth, new chairman of the board (also left vacant by Mr. Bartsch's resignation) is a leading founder of Rayonier, as is J. D. Zellerbach, president of Crown Zellerbach, elected to the board. Mr. Blyth is president of Blyth and Co., San Francisco and New York. Except for a three-year period, Mr. Zellerbach has been a director since the founding. Mr. Reed also emphasized the traditional relations of Hammermill Paper Co. to Rayonier and referred to the election of Donald S. Leslie, executive vice president of the Erie writing paper mill, to the Rayonier board. Hammermill and Mr. Reed's Simpson Logging are the two largest stockholders. Elected to the executive committee was Harold L. Zellerbach, another veteran board member.



RAYONIER TOP FLIGHT OFFICIALS (left to right): CHARLES C. CONRAD, of San Francisco, Administrative Director; DONALD S. LESLIE, of Erie, Pa., New Board Member and Executive Vice Pres., Hammermill Paper Co., and WILLIAM E. BREITENBACH, Vice President and Manager, Port Angeles, Wash.

OFFICIALS AT CHICAGO (l. to r.): L. G. WILSON, Treasurer; MORTON B. HOUSTON, Northwest Representative, and JOHN SULLIVAN, Purchasing Director, Seattle.

The interim operating executive, a son of the late Mark Reed, distinguished Northwest timber leader, characterized the Rayonier changes as "the result of a disagreement on basic operating policies." While Rayonier's record in recent years has been good, he said, "several members of the board, including myself, felt it might move toward its potentials more satisfactorily through basic changes in management policies." To determine the validity of this thinking, he said that it was decided by unanimous action of the board in September to have a survey made by an outside management engineering firm. It is understood as this issue goes to press that the survey is nearing completion.

William Edris, Seattle attorney, represented Mr. Bartsch in the latter's offer to dispose of his stock to Mr. Reed and associates, and at the same time arrangements were made for the purchase of stock held by Mr. Edris and of William S. Lucey, who resigned from the board to go into retirement. It is said about 50,000 shares are involved in the transaction which is said to have been made at several points above the market at time of sale, although Rayonier stock has since reached the share figure.

In a voluntary statement to PULP & PAPER on the eve of his resignation, Mr. Bartsch also characterized the situation as a basic disagreement on policy and outlined his proposal as issued through Mr. Edris. Future plans, he said, included only a long vacation. Announcing his decision to present his resignation the following day, Mr. Bartsch said he felt a great deal had been accomplished during his term.

CALCIUM BASE LIQUOR

BURNED WITHOUT AUXILIARY FUEL

At Interlake Sulfite Mill in Appleton, Wis.

By Charles E. Rogers, Development Engineer, Babcock & Wilcox Co.
In collaboration with R. S. Jolley, Engineering Dept., Consolidated Water Power & Paper Co.

The Sulfite Pulp Manufacturers Research League of the Wisconsin-Michigan area have been conducting research to determine an economical method for disposing of effluent liquor from the digesters of a calcium sulfite mill to eliminate stream pollution. One approach to the problem has been to study the economic possibilities of concentrating the spent calcium sulfite liquor, thereby reducing the quantity of liquor to be processed for subsequent preparation of road binder, vanillin, yeast and alcohol.

As the preliminary step in this investigation, they installed a small single effect Rosenblad evaporator at the Interlake Division of Consolidated Water Power and Paper Co., Appleton, Wis., with which they demonstrated the feasibility of evaporating calcium base sulfite liquor by the Rosenblad process (see PULP & PAPER, March 1950, p. 36). This process consists, in part, of using an evaporator having a plate type heat exchanger with duplicate passages for steam and liquor. The principle of operation consists of interchanging, periodically, the flow of liquor and steam in the two channels, or groups of channels, of the heat exchanger. Thus the scale formed in the channel enclosing the liquor flow during one period is dissolved by the acid condensate passing through the same channel during the subsequent period.

However, proving the feasibility of concentrating calcium base sulfite liquor for further processing as yeast, vanillin, etc., does not completely solve the problem of waste disposal because the market for these derivatives is limited. Therefore, the next logical step was to investigate the problems of burning the excess liquor and using the heat of combustion for the generation of steam. This steam to be used in concentrating the liquor and for other mill requirements. Sulfite League Investigating Committee, which visited Sweden, reported that it had been advised by the people in Scandinavia that attempts to burn calcium sulfite liquor alone had been unsuccessful. However, the people at Consolidated Water Power and Paper Co. were not satisfied that burning with other fuels was necessarily the only or even the best method for firing calcium sulfite liquor and so they consulted The Babcock & Wilcox Co. for their opinions.

B & W, having had considerable experience burning various pulp effluents, were of the opinion that calcium base liquor could be burned independently of other fuels; this opinion being substantiated by:

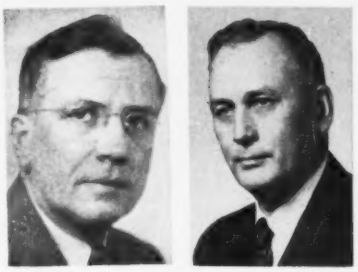
(1) Previous experience of successfully burning calcium base sulfite liquor during experimental work at Canada Paper Co., Windsor Mills;

(2) Experience in burning ammonia base sulfite liquor at the Rayonier Incorporated plant in Shelton, Wash., and

(3) Experience of burning the liquor from commercial operation of the Weyerhaeuser Timber Co.'s magnesium base sulfite mill at Longview, Wash., and recovering heat and chemicals for re-use (see PULP & PAPER, June 1950 issue).

Description of Experiment Unit

As a result, it was agreed to conduct experiments at Appleton, using an existing Stirling boiler in the power plant for a demonstration to re-affirm that calcium sulfite liquor could be burned independently. This boiler unit, illustrated in *Figure 1*, has 2900 sq. ft. of available heating surface without superheater, economizer, air heater or other heat traps and equipped with a refractory Dutch oven furnace over a Detroit "V" type stoker is capable of developing 290 boiler h.p. at 100% rating with steam at 125 pounds per sq. in. saturated. In preparation for liquor firing, a layer of brick protection was placed over the stoker grates with openings left in the refractory for air admission and a forced draft fan was installed to provide turbulent air for combustion as illustrated in *Figure 2*. Openings were cut in the side walls of the furnace for inserting portable liquor and oil burners as illustrated by *Figure 3* and a liquor storage tank, with steam coil liquor heater, liquor feed pump and piping were installed connecting the liquor supply from the evaporators to the burners as shown in *Figure 4*.



CHARLES E. ROGERS (left), Development Engineer, Research and Dev't. Dept., Babcock & Wilcox Co., New York, and R. S. JOLLEY (right), Engineering Dept., Consolidated Water Power & Paper Co. Wisconsin Rapids, Wis., who collaborated in writing this article on an important new development for the sulfite industry.

Experimental Procedure

After a week completing and testing the piping for liquor, steam, oil and air and checking the forced draft air distribution in the furnace, the test unit was ready for operation. The furnace and boiler were preheated by oil firing to 100% of rating using two oil burners, one located at the front of the left side wall and the other located at the door in the front wall of the furnace. Liquor of 62.7% solids, heated to a temperature of 158 degrees F was then fired at 85 pounds pressure with one 5/32 in. Spraying Systems, Inc., square jet nozzle inserted through the left rear side wall firing port and directed towards the front of the furnace *(see Figure 5)* so that the burning liquor particles would reverse in their flow to the boiler and pass by the incoming spray, thereby aiding in drying the liquor. Immediately, upon starting to fire liquor, the steam flow increased indicating the release of additional heat from this fuel. The oil burner in the front wall was gradually cut back and finally taken out of service. It was observed that only part of the liquor was burning in suspension. The balance was

ANOTHER MILESTONE IN PROGRESS OF SULFITE PULP INDUSTRY

Disposal or use of sulfite waste liquor is a most important problem of this industry. In every region of the world where sulfite pulp is made, top research brains are working on new developments to solve the problem.

PULP & PAPER magazine has brought to its readers many of the most significant reports on these developments. Outstanding among these have been our exclusive reports on the unique magnesia base sulfite mill of Weyerhaeuser Timber Co., including the latest report on actual recovery results in the *June 1950* issue of PULP & PAPER.

In our *Oct. 1950* issue we published an illustrated report on burning calcium base liquor with powdered coal at Nekoosa-Edwards Paper Co., following a report on similar experiences of Swedish mills in our *Sept. 1950* issue.

PULP & PAPER published an exclusive first report of the successful evaporation of calcium base sulfite liquor at Consolidated's Interlake mill in *Mar. 1950* issue.

Therefore, it is logical that we bring to you in this issue, in the accompanying article, a complete report on the essential sequel step—the burning of that liquor at Interlake. In this case, it is even more significant because it tells of the successful burning of this liquor without auxiliary fuel.

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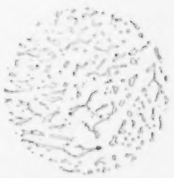

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depositing on the arch and sides of the furnace and forming char which fell to the floor and burned to a fluffy white ash. This char, however, started to build up in the middle of the furnace floor and finally became high enough to block the liquor spray. The burner was then taken out of service to permit disposing of this accumulation of char, which broke into flame and burned actively when disturbed with an air lance.

During the balance of this period, further attempts were made to burn the liquor with the simple hydraulic type of spray, meanwhile, improving the system by insulating the liquor storage tank and liquor lines and installing an agitator in the storage tank to obtain higher liquor temperatures by increasing the circulation around the heating coil. Finally, after reheating the furnace with oil, two liquor burners were inserted into the furnace through the rear side doors, one on each side, and liquor of 62.7% solids was fired at temperatures of 176 F. Steam flow increased immediately, the oil burners were removed and the liquor continued to burn in suspension without auxiliary fuel and without ash accumulating on the furnace floor. This operation continued until the liquor pump motor tripped out, shutting the unit down.

Several conclusions were reached from this run which should improve the operation of the unit.

1. A different style nozzle which would better atomize the liquor within a narrower spray angle should improve suspension burning by increasing the drying rate of the liquor particle without impingement on the furnace walls.

2. Preheated combustion air should improve the drying and burning of the liquor in flight by increasing the furnace temperatures.

3. Increasing the liquor temperatures should improve atomization and accelerate liquor drying by moisture flashing to steam in the furnace.

Subsequent Runs

During the next run, B&W Y-jet steam atomizing nozzles similar to those used for conventional oil firing were assembled on the extended burner pipes *(see Figure 6)*. The sprayer plates of these nozzles had five outlet ports which distribute the liquor equally about the center line of the plate within a 70 degree spray angle. A high degree of atomization was produced by the action of steam jets communicating with each liquor discharge port.

The unit was again preheated, by firing oil, to 100% of rating and then switched to liquor firing using one of the new type atomizers. Firing with liquor alone was found to be steady and a steam flow of 60 to 70% of boiler rating was maintained until the liquor supply was exhausted. During this run, liquor of 62.7% solids was fired at a temperature of 186 F and it was noted that liquor particles were smaller in size when atomized with the new sprayer plate and the color in the furnace was a bright orange as compared to the dull orange when using the original type of sprayer plate. There was no serious collection of ash on the furnace floor indicating that the majority of the liquor was burned in suspension.

During the next run, the unit was again preheated with oil and then fired with liquor of 62.7% solids heated to 182 F using two opposed Y-jet burners located in opposite side walls at the rear of the furnace. Ignition was steady and a boiler rating of 75% was maintained with liquor alone fired at a rate of 4.5 gpm until nozzle pluggage forced a shut down. Subsequent examination showed that the sprayer plates had plugged with wood chips and particles of coal which had apparently sifted into the storage tank.

A strainer was installed in the liquor line and the unit was again preheated with oil as the prelude to firing liquor. Two Y-jet liquor burners located in opposite sidewalls at the rear of the furnace were operated with liquor pressure of 85 psi and maintained a firing rate of 9.5 gpm of liquor at 62.7% solids and 182 F. At this firing rate with liquor alone, the boiler operated continuously at 125% of rating until the supply of liquor to the unit was exhausted. Ignition of the liquor at this rate was better and there was very little, if any, deposition of ash on the furnace floor.

At this point in the experiments, an effort was made to further improve the operation with liquor firing by installing an additional length of steam coil in the liquor storage tank in an attempt to increase the temperature of the liquor to 200 F and installing a unit heater at the inlet to the forced draft fan to raise the temperature of the combustion air.

Upon checking for improvement from this additional equipment, it was found that the air heater raised the temperature of the combustion air from 75 F to 147 F. But, the additional length of steam coil in the liquor storage tank did not appreciably increase the temperature of the liquor which leveled off at 189 F. Later, when firing liquor alone at an average rate of 9.9 gpm an average boiler rating of 145 per cent was maintained until the supply of liquor was exhausted.

During this run, when firing liquor at the higher rate, char built up on the sloping, brick lined furnace floor and was removed by air lancing about every ten minutes. This build-up was produced by the liquor spray striking the furnace roof and falling to the floor before it was ready to burn. The wide angle at which the liquor left the sprayer plate was the principle cause of this deposition of liquor on the furnace arch. At the end of the run, new sprayer plates were installed which had an included spray angle of 45 degrees instead of the former 70 deg. angle.

Having completed the major changes for improving the operation of this converted boiler unit, a demonstration of firing liquor without auxiliary fuel lasted for 2 hours and 42 minutes until the liquor supply was exhausted. As usual, the furnace was first preheated by firing oil with two burners located at the front of the furnace and those burners were removed immediately after starting to fire liquor. Liquor was fired with two opposed Y-jet steam atomizing burners, equipped with the new 45 deg. angle sprayer plates from the rear of the furnace toward the front wall. Liquor of 61.7% solids at a temperature of 194 F was burned in suspension at a rate of 5.2 gpm with liquor atomizing pressure of 65 psi. There was no ash build-up on the furnace floor and only occasional adjustment of steam atomizing valves was required to maintain the desired atomiza-

Consolidated Has Been Pioneer

Consolidated Water Power & Paper Co., under its chief, George W. Mead, has pioneered in many new developments in the pulp and paper industry—the uses of electricity in the modern sense in papermaking; the high speed machine-coating of paper; the uses of aspen semi-chemical pulp; the evaporation of calcium base liquor—to mention just a few. As in the past, President Mead envisaged the goal and gave the go-ahead for this latest important achievement in a Consolidated mill.

The work described on these pages was done under direction of F. G. Ely of Babcock & Wilcox, with E. L. Ralston as the field man in charge for B. & W.

For Consolidated, R. S. Jolley, of the Wisconsin Rapids central engineering staff under that company's veteran chief engineer, William Thiele, was in charge. Mr. Jolley specializes in steam power generation and combustion engineering. Working under him from the Consolidated staff on this project were Oliver Frogner and Maynard Gardner.

A very interesting sidelight on this—*the B & W engineers claim that the burning characteristics at Interlake closely parallel their experience at Longview, Wash., when burning magnesium oxide base liquor.*

The Sterling boiler used at Interlake has been in operation 50 years, hence no attempt was made to demonstrate the efficiency of burning on this unit as it was set up. For utmost efficiency, the experimenters believe it should be done on more modern equipment.

Indicating the great interest in burning calcium liquor technical men and engineers from 14 sulfite mills witnessed another recent demonstration of this at the Niagara, Wis., mill of Kimberly-Clark. The liquor had been evaporated at Interlake and shipped to Niagara. Present were Alfred Phillips, technical director, and Mr. Frogner, both from the Interlake mill, and H. A. Rothschild, technical director of all K-C mills.

Northern Paper Mills, Green Bay, Wis., has also started full-scale tests of burning calcium base liquor, Rhinelander Paper Co. is making plans to do so, too; and in the Far West, Soundview and Crown Zellerbach are proceeding with evaporation and burning experiments with ammonia base liquor at Crown Z's Lebanon, Ore., mill.

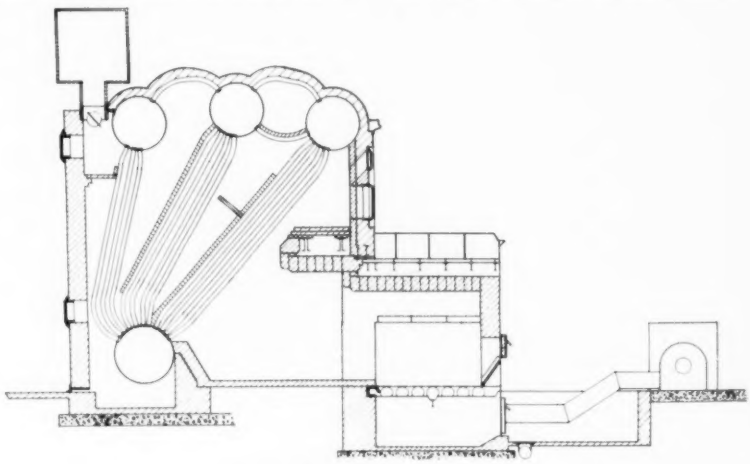
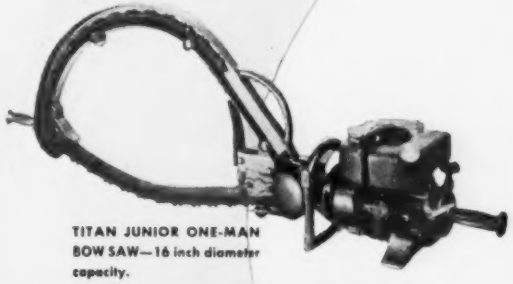


FIGURE NO 1
SECTIONAL SIDE ELEVATIONAL OF
EXPERIMENTAL UNIT

TITAN BLUESTREAK Has Everything!

TITAN JUNIOR ONE-MAN SAW—complete bar swivel, automatic clutch—5 H. P.

TITAN JUNIOR SAW—equipped with accessories for use by two men.



TITAN JUNIOR ONE-MAN BOW SAW—16 inch diameter capacity.

The complete TITAN line includes:

CHAIN SAWS—one and two-man—falling, bucking and bow attachments.

CHAINS—five types for every cutting need and every kind of wood.

BARS—five types, ranging in length from 2 to 12 feet on the two-man saw, including a thin bar, and from 18 to 44 inches on the one-man saw.

ALL CHAIN SAW ATTACHMENTS, accessories and parts.

The outstanding TITAN features include:

LIGHT WEIGHT—more power per pound.

NO VIBRATION—plenty of smooth power to carry the load.

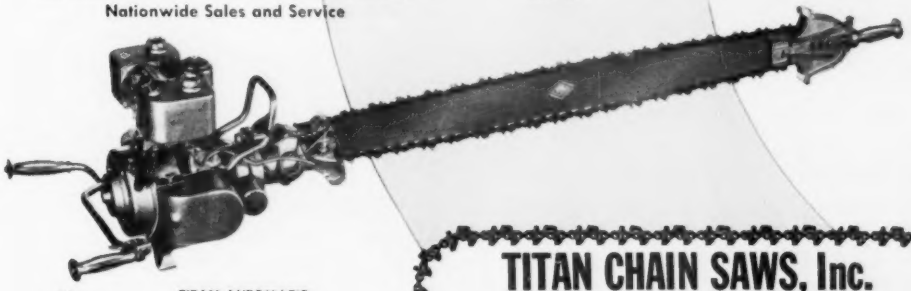
LONG LIFE—vital parts are protected.

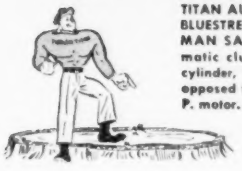
EVENLY BALANCED—easily handled and carried in the woods.

TEST RUN—all engines are fully tested and run under maximum load.

See Titan Chain Saws in operation before you buy.

Nationwide Sales and Service

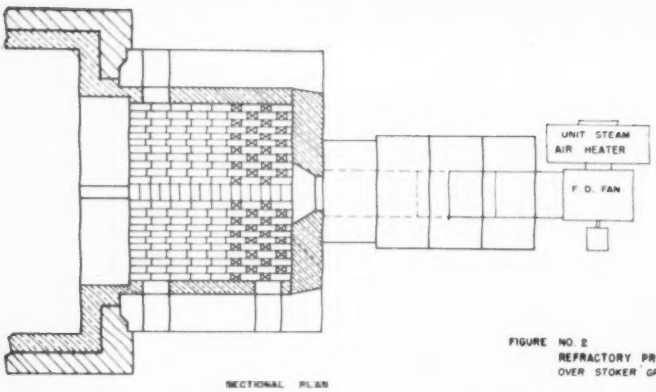




TITAN AUTOMATIC BLUESTREAK TWO-MAN SAW—automatic clutch, two-cylinder, two-cycle, opposed type 12 H. P. motor.

TITAN CHAIN SAWS, Inc.
SEATTLE 4, WASHINGTON

TITAN



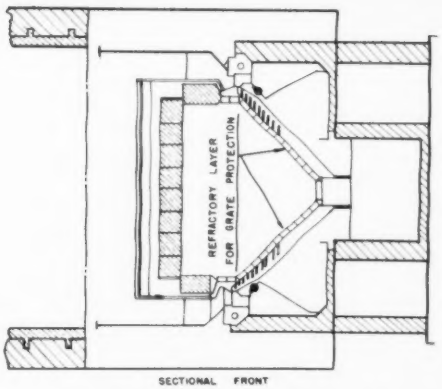


FIGURE NO. 2
REFRACTORY PROTECTION
OVER STOKER GRATES

tion of a total of 855 gals. of liquor burned for a steam generation equivalent to 92% of boiler rating.

After the unit had cooled, the furnace and boiler were inspected and ash samples were collected from various sections of the unit. Laboratory analysis of the ash showed the following:

Table 1

Laboratory Ash from Liquor	
Initial Deformation-Reducing-deg. F	2710
Initial Deformation-Oxidizing-deg. F	2600
Fluid Temp.-Reducing-deg.F	2730
Fluid Temp.-Oxidizing-deg. F	2620
Ash from Secondary Furnace	
Initial Deformation-Reducing-deg. F	2650
Initial-Deformation-Oxidizing-deg. F	2690
Fluid Temp.-Reducing-deg. F	2670
Fluid Temp.-Oxidizing-deg. F.	2710
Percent carbon in Ash	nil

Later, a new and larger liquor feed pump was installed to deliver liquor to the burners and a direct steam liquor heater consisting of a ¾ in. pipe having ⅛ in. holes on 1 in. centers drilled in two rows at an angle of 45 deg. to each other was located near the bottom of the storage tank. This liquor heater raised the temperature of 790 gals. of liquor from 119 F to 137 F in 20 minutes causing dilution of the liquor from 61.7% to 60.5% solids. The steam also provided a good stirring action. At a later time, the temperature of the liquor was increased from 134 F to 200 F in 1½ hrs. with a sacrifice in liquor concentration from 60.5% to 58.5% solids.

At this point in the experiments, the unit was operated to demonstrate the limits of flexibility when firing liquor without the addition of auxiliary fuel. During the first period, liquor was fired at the rate of 3.0 gpm and generating steam at a rating of 50% of boiler capacity. Ignition was steady and so the liquor firing rate was reduced progressively. The furnace gradually cooled, the flames changing from a bright orange to dull orange in color, the ash particles became larger in size and more of them reached the rear of the furnace before burning out and ignition began to fluctuate, gently at first and then more violently, until at a liquor firing rate of 1.3 gpm the furnace was cooling faster than it was being heated and steam generation had dropped to 15% of boiler rated capacity. As the final step in this demonstration, the liquor firing rate was increased from the 1.3 gpm to 9.0 gpm in seven minutes and steam generation responded without using auxiliary fuel and increased from 15% to 125% of boiler rated capacity. This demonstrates the fact that combustion without auxiliary fuel is quite stable.

As a final demonstration in these experiments, the unit was operated continuously over

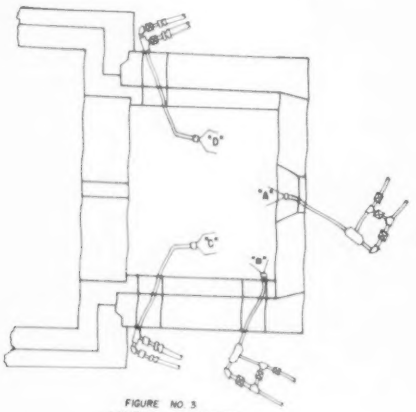


FIGURE NO. 3
LOCATION OF BURNERS
"A"-"B"- OIL BURNERS
C - D - LIQUOR BURNERS

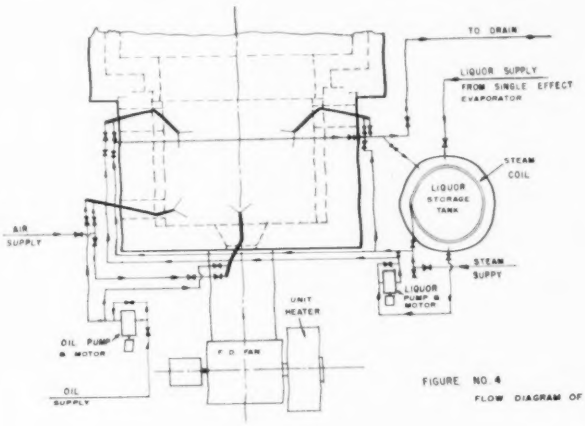


FIGURE NO. 4
FLOW DIAGRAM OF LIQUOR

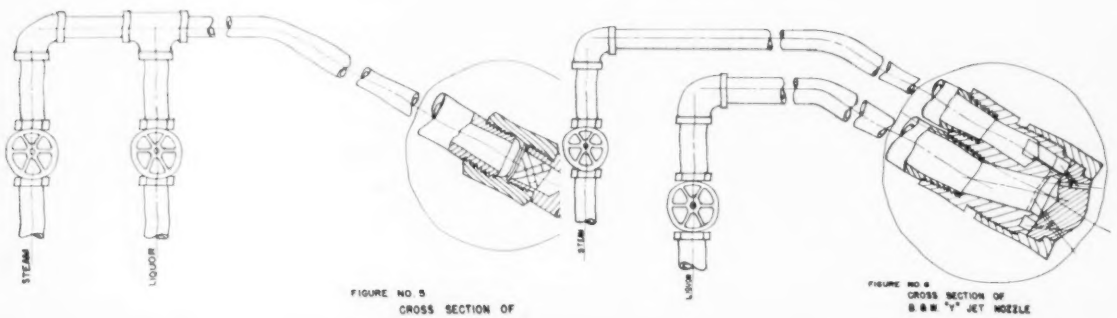
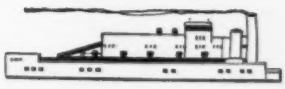


FIGURE NO. 5
CROSS SECTION OF
SQUARE JET NOZZLE

FIGURE NO. 6
CROSS SECTION OF
B & W "Y" JET NOZZLE



process "know how" + unit operations = profitable pulp mill processing

Foster Wheeler designs and constructs special apparatus for pulp mills. Pulp mill processing makes use of one or more of the following basic engineering unit operations with which FW engineers have had unusual success over the years in numerous industrial applications:

Heating
Cooling
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Evaporation

Turpentine Recovery
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a period of 20 hours by firing liquor without the aid of a supplementary fuel until the supply of evaporated liquor was entirely exhausted. Prior to this experimental run, all of the refractory was removed from the grates of the "V" type stoker excepting an 18-inch wide portion at the top of each inclined side. During the experiment, two "I" jet steam atomizing nozzles were used and located at the rear of the furnace on opposite sides and fired toward the front of the furnace so that the incoming liquor spray passed through the reversed flow of the hot gases. During this 20-hour period, an average of 5.2 gals. of liquor per minute was fired by the two nozzles with the liquor of 59.5% solids preheated to 194 F. Combustion air, at room temperature, was induced into the primary furnace by natural stack draft, and this unit which had been converted from coal firing to liquor firing, generated an amount of steam equivalent to 85 to 100 per cent of the boiler rating. This demonstration showed that liquor at reasonable concentrations can be fired over an extended period without the help of an auxiliary fuel.

Test Results

During the several experimental runs, a considerable amount of data and liquor samples was taken to cover the pertinent information of the operation. From this information, we have selected the following as being representative of the operation as a whole.

Table 2

Liquor Analysis:	*Percent*
Moisture	38.3
Carbon	27.8
Hydrogen	2.6
Total Sulfur	3.4
Ash	9.2
Oxygen & Nitrogen	18.7
Heating Value—Btu per lb. as fired	4710
Run duration firing liquor alone	20 hrs.
Liquor firing rate	5.2 g.p.m.
Liquor temp.	194 deg. F
Steam generation (actual)	8,830 lbs. per hr.
Steam pressure	125 p.s.i.g.
Steam temperature—degrees F	Saturated
Feed Water temperature	210 deg. F.
Combustion air temperature	80 deg. F.
Excess air	48%

From the above data, we have calculated the following as being representative of the results when firing calcium base sulfite liquor experimentally without auxiliary fuel in this converted coal firing boiler unit.

Table 3

	Lbs. per Hr.
Liquor fired	3590
Liquor solids fired	2215
Equivalent steam generated (F & A)	9236
	Lbs. Steam F & A
Per lb. of liquor	2.57
Per lb. of liquor solids	4.17
Per ton O.D. pulp	10,760

A review of above data indicates this experimental unit operated at a boiler efficiency of 53% during the demonstrations. However, this indicated boiler efficiency should not be considered too critically because these experiments were conducted to demonstrate that calcium base sulfite liquor can be burned satisfactorily without the aid of a supplementary fuel rather than to determine the efficiency of this particular unit when firing liquor. Any steam generating unit will necessarily operate at a lower efficiency when firing liquor than would be true with the same unit firing conventional fuels. Heat losses from the combustion of a liquor, derived from the digestion of wood for pulp, are inherently high due to the high moisture and hydrogen content of the liquor. It is acknowledged that this experimental unit was not installed or equipped to burn liquor efficiently but, had it been a unit designed with practical heat absorbing components, it is expected that efficiencies of 69 to 72% would have been realized and steam produced equivalent to that generated if burning 24,000 pounds of coal.

CONCLUSIONS

The above test results together with the experience from the several experimental runs under varying conditions indicate conclusively that calcium base sulfite liquor can be burned in a practical manner in a properly designed boiler unit without the necessity of firing in conjunction with an auxiliary fuel.

It is believed that the following features of design should be incorporated in any proposed commercial heat recovery unit for the disposal of calcium base sulfite liquor.

1. The feature of spraying the liquor in a U-shaped pattern, thereby reversing the flow of the burning liquor through the incoming liquor spray seems highly desirable from the standpoint of drying the liquor in flight within a turbulent body of combustion with normal excess air.

2. A properly designed refractory furnace appears to be required to maintain high temperatures for complete combustion of a fuel having a relatively high moisture content.

3. A gas air heater is essential as an efficient heat absorbing component to maintain the combustion air at relatively high temperatures for increasing the available heat input to the furnace and accelerating the rate of drying and combustion of the liquor particles.

4. Steam atomizing burners are satisfactory for atomizing the liquor for good suspension burning at liquor pressures of 65 to 90 psig combined with steam pressures of 85 to 110 psig.

5. Liquor should be maintained at elevated temperatures for satisfactory firing, preferably in some manner which will not cause excessive dilution of the liquor.

This leads to two suggestions for arrangement of boiler units which incorporates the above suggestions for firing calcium base sulfite liquor:

1. An arrangement, shown in *Figure 7*, whereby an existing power boiler can be converted to calcium sulfite liquor firing by installing a new furnace and air heater and dust collectors. This unit, when firing liquor at 65 per cent solids and having a heating value of 5020 Btu per pound of liquor as fired, will give an expected performance as follows in Table 4:

(Continued on Page 91)

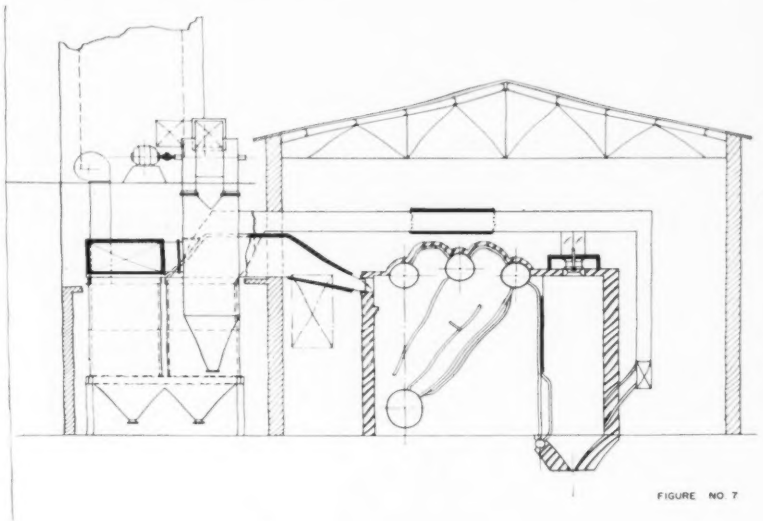

FIGURE NO. 7

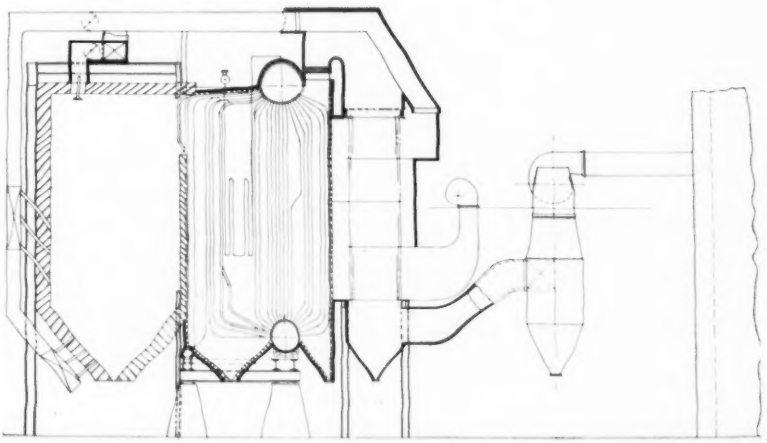

FIGURE NO. 8

VALUE in a fine product reflects the experience and skills of its makers.

VALUE in Fourdrinier wires is a matter of record . . . paper quality and production records in mills throughout America reflect the fact that *Appleton Wires are Good Wires!*

APPLETON WIRE WORKS, INC.
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NEW MODERN PLANT FOR ROSS INDUSTRIES CORP.

Ross industries Corp., which is the parent corporation for J. O. Ross Engineering Corp., has started construction on an additional manufacturing plant (shown in the sketch above) adjacent to their present plant in New Brunswick, N. J. Their new plant which is of brick and steel, fireproof construction, will contain approximately 75,000 square feet of floor space. Incorporated is a new building to contain local factory offices and a new and enlarged testing and research laboratory. The new plant will greatly expand manufacturing capacity for Ross Air Systems for heat treating, ventilation and similar apparatus, to be completed in late 1951. Every foot of manufacturing and storage space will be covered by traveling cranes.

Link-Belt Motogear

Link-Belt Co., 307 North Michigan, Chicago 1, announces that it has developed a new packaged power unit, called Link-Belt Motogear consisting of a compact, enclosed helical gear drive with separate standard motor, flexibly coupled and mounted on one welded steel base plate. A movable plate between motor feet and welded base plate provides for convenient adjustment, should shaft realignment be necessary. Link-Belt Motogears are built in a wide range of ratios and horse powers. Write for Link-Belt Book No. 2247.

AUSTRIAN GUESTS at first mill visited on 2-month tour—Crown Zellerbach Corp., Camas, Wash. Later visits planned in Wisconsin mills. Left to right—E. J. Dobo, Bleach Plant Chemist, tour guide; Dr. W. M. Hearon, Asst. Director of Research, C-Z Corp.; Dr. Anton Wacek, Technical University, Graz; Dr. Karl Kratzl, University of Austria; A. G. Natwick, Asst. Mgr., Camas mill. Austrians' chief interest: Waste use or disposal methods.

216 Employes Guests at Dinner

Crown Zellerbach's biggest mill, Camas, Wash., honored 216 employes Nov. 9 at a service pin dinner. Among those featured were, left to right, R. A. McDonald, C-Z executive vice president, who presented the pins; Otto Michaelis, assistant sulfite pulp superintendent and J. L. Burnett, engineering supervisor, recipients of 40-year pins; and Mike Paul, personnel supervisor, who assisted in the presentation.

B. F. Warren, converting manager of the Camas plant, presided as master of ceremonies and F. A. Drumb, resident manager, extended a welcome. Congressman Russell V. Mack, state of Washington, was guest speaker.

Predicts Record Pulp Year

All time highs in U. S. production and new supply of wood pulp will be recorded for 1950, says Lawson P. Turcotte, president, Puget Sound Pulp & Timber Co., Bellingham, Wash. Reviewing the first nine months of 1950, Mr. Turcotte said production is running 23% ahead of last year and 13% ahead of 1948, best previous year. New supply, which includes import balance, is exceeding last year's tonnage by 27%, and beating the 1948 record by 11%. Nine months' production of wood pulp in 1950 in the U.S. topped 10,820,000 tons. New supply provided by domestic production and import balance totaled 12,515,000 tons in 1950's first nine months. Gaining momentum faster than chemical pulp, nine months' new supply of mechanical pulp totaled 1,790,000 tons, against 1,615,000 last year.

Dobrow Reports on West Paper Outlook

Expressing himself as tremendously impressed with developments on the west coast since his visit there in 1947, Morris Dobrow, executive-secretary of the Writing and Cover Paper Manufacturers Association, returned to New York during October after nearly a month's coverage of the Pacific Northwest and California by air and car.

He returned with first-hand knowledge of the impact of western population increases in the past decade (California 51.6%, Oregon 34%, and Washington 36%), on the paper market, said he found merchants had sold out large inventories built up after heavy buying. They were naturally anxious to repeat the process.

Mr. Dobrow said business would be good on the coast, and he reported it seemed to him that the wood situation was improving.

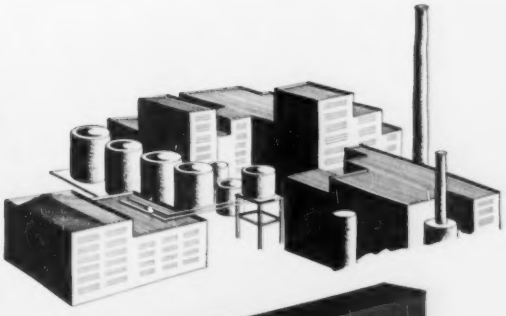
Spaulding Installs Digester Additions

Spaulding Pulp & Paper Co., Newberg, Ore., which has for several months been continuously improving various portions of the plant, has begun installation of circulating system on two digesters. J. B. Wilt, general manager, announced that all of the plant's four digesters will be converted to this Chemipulp Process system as the units are relined. The objectives include increasing both quantity and quality of pulp.

The company has ordered 14 new 12-plate flat screens from Sandy Hill Iron & Brass Works, to be delivered and installed late this year, to replace worn screens and provide additional capacity.

GEORGE E. FROMM and *HAROLD SINCLAIR*, both of American Cyanamid, New York, were featured speakers at a Watertown, New York, meeting of both superintendents and TAPPI members this winter. The subject was practical aspects of wax sizes application.

In Modern Pulp Mills...



...the best-cooking chips come from SIMONDS T-18 CHIPPER KNIVES

These shock-resistant "Red Back" Chipper Knives give you quickest reduction of logs to *uniformly-sized chips* that "cook" quickly and thoroughly . . . chips that assure consistent top quality pulp.

"Red Back" Chipper Knives are made of Simonds tough T-18 Steel, specially developed for highest resistance to both shock and abrasion. This *double protection* prevents breakage of cutting edges . . . and saves you money by giving you a steady flow of *chips with a minimum of sawdust!* Order from your nearest Simonds dealer.

SIMONDS SAW AND STEEL CO.

BRANCH OFFICES IN: *Boston, Chicago, San Francisco and Portland, Ore. Canadian Factory in Montreal, Que.*

All across the North American continent, north to south and east to west, the industry is improving woodlands technics and introducing large scale conservation, reforestation and mechanization.

OLD VS. 2ND GROWTH VALUES

Foresters and Chemists Discuss Economics

Anyone with lingering doubts that this is veritably the "Cellulose Age" of the wood-using industries probably would be convinced if he had dropped in on the meeting of the original Pacific Northwest section of the Forest Products Research Society at Shelton, Wash., Nov. 15. It drew a mixed attendance of about 125 foresters and chemists—what used to be considered virtually an unmixable combination with jargons completely unintelligible to one another.

Because the subject was "The Effect of Second Growth Economy on Wood-Using Industries of the Far West," there were a number of pulp industry men present. The verdict of the meeting was that the economic effect of use of second growth Douglas Fir and Western Hemlock in place of diminishing first growth was not only favorable in the pulp field but in lumber and plywood fields as well. In some respects cost factors were more favorable; production output was more favorable, and even quality of product was improved. (What none of the speakers said, however, is that pulp mills today have to make the best of any kind of wood they can get.)

Clarence D. Stone, forester, Elliott Bay Lumber Co., Seattle, chairman of the section, presided. Dr. Ed Locke, USFS, Portland, Ore., a past national president, attended. Carl Castle, of Seattle, who tours pulp and paper mills and other industries for Dow Chemical Co., was program chairman, and he put together a well-knit combination of talks from forestry, lumber, plywood and pulp standpoints and even brought in the governor of the state, Arthur B. Langlie, for the final dinner address in which he praised scientific forest management as it is developing today in the Far West.

There was a tour of the postwar built Wood Fiber Division of Simpson Logging Co., described in an illustrated article in PULP & PAPER, Jan. 1948 issue, page 38, an addition which has enabled that 50-year forest industry to make more products out of less trees.

George L. Drake, vice president in charge of logging and public relations for Simpson (incidentally, there is a mighty interesting combination of duties—and not so strange, either, when you think it through), welcomed the delegates and Arthur Walton, Simpson's research director and brother of Charles Walton, manager of the fiber plant, answed questions about it.

AT SHELTON MEETING:
Top—l. to r.: DR. BEN T. BRIGGS, Research Dept., Rayonier Inc., Shelton, Wash.; CARL CASTLE, Dow Chemical Co., Seattle, who was Program Chairman; ROBT. L. FULLER, Forester, Crown Zellerbach Corp., Port Townsend, Wash.
Below—l. to r.: ART WALTON, Research Director, Simpson Logging Co., Shelton; ROY STIER, Tree Farm Forester, St. Paul & Tacoma Lbr. Co.; CHAS. HERBERT WILLISON, Forester, Crown Zellerbach, Port Angeles, Wash., and C. A. ANDERSON, Wood Technologist, Crown Z, Camas, Wash.

Board Mill Changes

Since our story was published, several products have been added and it now makes ½-in. building board and wallboard; coated decorative tile and plank; acoustic tile in ½, ⅝ and 1 in. thicknesses; roof insulation board in 1.2 in. and multiples; ½ and 1 in. insulation plaster lath; asphalt impregnated sheathing and refrigeration sheathing—all these out of wood leftovers from Simpson sawmills, plywood plants and logging stands and increasing the forest products of that company by 35%, although only two trees are now cut where three used to be.

Second growth fir develops better strength for the products than old growth, said Mr. Walton, but he added that they are treated as two entirely different species for purposes desired in the processes. Since our 1948 article on this plant, the number of Bauer Bros. Pulpers used—all type No. 185—have been increased from seven to ten; an Impco saveall has been added which has reduced effluent fiber losses to a trivial 1 lb. to 1,000 gals., and a second Trimbey screen has been installed. Other major equipment are the Asplund Defibrator; three stainless steel Babcock & Wilcox rotary digesters; 113-in. wire Downingtown Fourdrinier with wet end coating of water-dispersed paint and 8-deck Coe dryer.

Mr. Walton said 30% of their material is Asplund-prepared and 70% by the Bauers. In contrast to the Asplund, Bauers use hot water instead of steam; there is no pressure in Bauers and both discs are revolving. He said seven Bauers each with two 150 h.p. motors driving discs, are used for the most finely ground pulp, and three, with two 100 h.p. drives each, for slightly coarser or higher freeness pulp. More Asplund processing would require more secondary refining, he said, in explaining that other ratios than 30-70 could be used.

Rayonier Researcher Talks

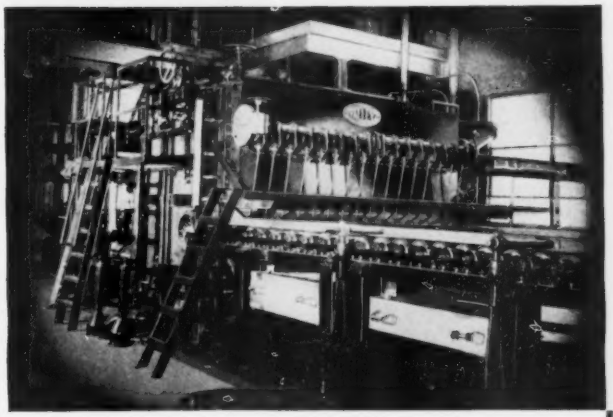
Dr. Ben T. Briggs, Research Dept., Rayonier Inc., Shelton, Wash., (he was raised in Portland, Ore., earning his degrees, including Ph.D. at U. of Illinois), spoke for

— MEETINGS —

Truck Loggers' Association of B. C., Hotel Vancouver, Vancouver, B. C. —Jan. 17-19.

Forest Products Research Society Annual Meeting and Show—Convention Hall, Philadelphia—May 7-11.

High retention of clay and titanium... with Swift's new process* Glue!

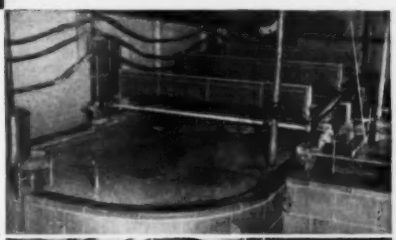


"A very high retention of clay and titanium!" That's what papermen say when they use Swift's new process Glue as a flocculating agent in book paper production. It promotes greater retention of fibre and filler on the screens—valuable clays and titanium are not lost in the white water. Swift's new process Glue also aids in the even formation of the sheet. This is because Swift's new process Glue is a colloidally active water soluble animal protein.

Swift's new process Glue is economical because it is used at low concentrations. No expensive agents are required in the glue solution. It is easy to prepare—easy to handle because it goes into solution quickly. It is also designed to have uniform non-foaming properties.

High recovery in Flotation-Type Saveall Systems, too.

Swift's new process Glue is also being used successfully in Flotation-Type Saveall Systems. Its great ability to "flock" fibres and fillers aids in the obtaining of clearer effluents. Swift's new process Glue is just as easy and economical to use in this operation as for clay and titanium retention —and mills report the same consistent and uniform results.



Creping of facial and toilet tissue.

Swift's new process Glue aids in the securing of improved uniform crepe when used in the production of facial and toilet tissue. This is because the high quality standards of Swift's new process Glue help maintain a constant mirror-like film on the drying roll.

*Swift's new process Glue made by an exclusive process!

Swift's new process animal Glue is a highly efficient processing agent because it is made from fresh bones by an exclusive, patented Swift method . . . a method that assures a uniform, light-colored glue of unusual purity. This method permits precise synchronized control and minimizes contact with foreign or contaminating substances.

Swift & Company

Swift & Company
Adhesives Products Department PP-1
Chicago 9, Illinois

Please send us your introductory trial shipment of Swift's new process Glue at the quantity price, to be tested for use in our operations. We understand, if not fully satisfied, it may be returned for credit at your expense. *This offer expires March 31, 1951.*

Firm _____

Address _____

City _____ *Zone* _____ *State* _____

Signed by _____

the pulp industry. He said that replacement of old by second growth Western hemlock and Douglas fir resulted in definitely higher yields in pulp by both unit weight and volume measure. Douglas fir, for other reasons, of course, is ruled out of sulfite mills. But in kraft, both second growth woods are used and not only result in higher yields, but also in slightly higher burst tests, slightly lower tear tests and slightly higher brightness in bleaching than does the old growth fir or hemlock. He reviewed past literature (mainly he referred in his talk to U. S. Forest Products Laboratory, Madison, Wis., experiments) showing an increased yield, usually of 6% to 7% for either sulfite or kraft cooking of second growth over old growth.

He not only compared results with second growth and old growth, but also sapwood vs. heartwood (the latter is the center wood which gives strength but does not conduct sap). He said the Madison lab and Rayonier's own lab tests showed roughly a 5% higher yield of paper pulps from sapwood than heartwood. In the kraft industry, tests showed about the same. There is more sapwood in second growth in ratio to heartwood than in old growth.

He presented the following tables in U. S. Forest Products Lab experiments and explained the cellulose and alpha cellulose percentages roughly indicated the percentages of pulp yield in most processes:

Table I.
Comparative Analyses of Sapwood and Heartwood.

	Hemlock Percentages		*Douglas Fir Percentages*	
	Sap-wood	*Heart-wood*	*Sap-wood*	*Heart-wood*
C & B Cellulose	59.8	56.9	63.2	61.5
Alpha Cellulose	43.7	43.1	46.2	43.7
Lignin	28.8	29.5	25.4	27.3
Ether Soluble	0.5	1.0	0.4	1.0
Alcohol-Benzene Soluble	2.1	5.8	1.6	3.3
Hot Water Soluble	2.6	5.1	5.0	4.2
1% NaOH Soluble	12.2	15.6	12.7	12.6

Table II.
Comparative Analyses of Second Growth and Old Growth Woods.

	Hemlock		*Douglas Fir*	
	2nd growth	*Old growth*	*2nd growth*	*Old growth*
C & B Cellulose	60.2	57.4	62.2	56.2
Alpha Cellulose	43.2	41.1	45.8	41.7
Lignin	29.2	28.7	26.9	28.9
Ether Soluble	0.3	1.0	0.7	0.7
Alcohol-Benz. S'ble	1.7	4.8	3.1	4.0
Hot Water Soluble	2.3	4.4	3.0	5.1
1% NaOH Soluble	11.3	13.8	12.1	16.2

Other Speakers on Second Growth Use

Verging on sensational were remarks of the spokesman chosen for the plywood industry, Frank Morris, Hardell Plywood Co., Olympia, Wash., who said that now that it is becoming necessary to peel thinner veneers, his company finds that these make much better plywood panels. His company's choice is in second growth Douglas fir timber down to only 12 inches diameter, but it is proving that it can make and sell superior plywood from that size timber.

Elmer Matson, forester, Pacific Northwest Forest and Range Experiment Station, Portland, Ore., said one-third of lumber is being made in the Douglas fir region from second growth and eventually all will be. He said 65% of No. 1 common or better grades of lumber are made from second growth fir up to 100 years old.

Speaking for forest production (and it should be remembered that in the Far West saw and pulpwood comes out from logging stands together and often its destination is not decided until it hits the headrig) was Roy E. Stier, tree farm forester, St. Paul & Tacoma Lumber Co. With the specializing of products, he said, there were limits on markets for thinning trees in second growth stands, but he told of a study of its economics made by his company in a Voight Creek stand of up to 40-year-old Douglas fir. The 27-year-old trees are being thinned out and sold for pulpwood and other products. Better than pulpwood is the market for their use in the big Tacoma smelter where a pole is burned in each smelter vat charge and it acts like "baking powder" in improving the smelting process.

The timber thus removed is paying for maintenance of the tree farm and a little more. The money to pay for logging roads, he said, would have to come out of the final tree crop.

BARKERS IN WOODS IN SOUTH

Hydraulic and Portable Mechanical Types

Interest in the South in barking other than that effected in the standard pulp mill barking drum, which has been evidenced since the mills took sawmill slabs during World War II, has been further advanced by the installation of two hydraulic barkers and a new type portable woods unit. It is quite probable that a trend toward these types of operations will develop as the result of these successful applications.

In each case the conventional 5-ft. 3-inch length, light weight Southern pulpwood stick is involved. The hydraulic operations have prepared wood for Masonite (Laurel, Miss.) and the woods units for Armstrong Cork (Pensacola, Fla.). In either case transportation of bark to the mill has been eliminated.

The first hydraulic installation was by the Fitler Co., on a plantation at Onward, about 40 miles north of Vicksburg, Miss. Here an Allis-Chalmers streambarker was installed to handle pulpwood from a low-lying 20,000 acre hardwood tract. The operation had barely started when a strike closed Masonite for a matter of weeks, and successful operation afterwards halted by a court action involving an $800,000 land sale transaction.

Here the streambarker was a Model D, with initial water pressure of 750 pounds per sq. in., subsequently stepped up to 900 p.s.i. The 5-ft. 3-inch pulpwood was debarked at the rate of 1200 pieces per hour. The pulpwood was unloaded from trucks to a Jeffrey chain conveyor, taking it to barker on the second floor. After barking it was conveyed to waiting railroad rack cars. Pumps were also from Allis-Chalmers and electric motors were Louis Allis.

At York, Ala., the Derby Wood Products Co. has recently completed a smaller, more simple Allis-Chalmers hydraulic barking installation capable of turning out 1560 pieces of 5-ft. 3-inch sticks of pine per hour. This also is an Allis-Chalmers Model D stream barker. Here, however, the main pump (300 HP motor driven) is backed by a booster pump. The two together can provide 800 p.s.i. water pressure to the barking jets. The booster motor is 100 HP. The pulpwood is fed to a Jeffrey Mfg. Co. conveyor chain which brings it at head high into the plant. Here it rolls down a slight incline by gravity, to the barker feeding chain. After barking, it moves straight out of the building. The entire installation is on the ground floor.

The water is carried by a concrete-lined ditch to an Allis-Chalmers 3x12 foot low-head vibrating screen. Here the separation sends bark to a dump and the screened water to a pond.

Jeep-Mounted Barker

At Mobile, Ala., James R. Clark, formerly associated with Rite Equipment Co., has teamed up with S. M. Adams, an International Paper Co., pulpwood dealer, in developing a Russian jeep mounted portable woods barker. The original unit plus a later, larger model are now in active production with a record of operation.

The barker has a fixed drum attached to the truck frame. A power take-off from the jeep engine rotates an axle (centered in the drum) that has arms dividing the interior space into five compartments. The arms are devised to rotate the pulpwood within the compartment and as the axle revolves the bark is scraped off (much like a wood lathe) by iron channels or edges.

The drum's interior clearance of 6-feet provides ample space for the standard length pulpwood. Each of five compartments can hold from 5 to 18 sticks, depending upon diameter, with 64 sticks comprising an average barker load. This amounts to ¾ths cord. A load of green,

Snaking 'em out of the piney: Roy Coker's International I-4 gets out a couple of big ones.

With a Winch in the Woods

"This wheel tractor with a winch makes my quota regardless of weather," says Roy Coker, Hortense, Georgia

Roy Coker collects 18 and more units a day with a small International I-4 tractor. "As far as snaking out pulp logs is concerned," says Roy, "my little old wheel tractor and winch gets 'em out and makes my quota, come red clay or high water!"

Whether your job calls for a fast, sturdy wheel tractor or a rugged, ground-gripping crawler—there's an International to fit your operation, make your quota, and cut your unit costs year 'round, good weather and bad.

Now's the time to see your International Industrial Distributor—and see YOUR International tractor!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILL.

INTERNATIONAL — INTERNATIONAL HARVESTER — **POWER THAT PAYS**

(freshly cut) longleaf pine can be 95% to 100% debarked in 40 minutes.

Currently the operation of the barker included one man with a wheeled pulpwood saw for felling and bucking; two men to drive the jeep and operate the barker (loading), and a truck driver for the Ford F-7 dual-tandem wheel equipped truck with Beaumis Mfg. Corp. (Townsend, Mass.) Model BHD axle and a removable cradle. The cradle may be dropped from the truck for loading, in which case a Gar Wood winch is used to draw it back on the truck's runways.

In practice, the crew moves into a marked stand. The barker follows the pulpwood saw, the pieces being fed in through a door on the right hand side. The door (as well as discharge portal) are operated by compressed air furnished by a Worthington unit. Each door has an automatic lock. When the barker is fully charged it stands still for the de-barking operation. The entire load is discharged in one revolution of the drum. The accumulation and piling of the wood facilitates the truck loading. An hydraulic brake stops the rotating arms. The jeep has four wheel drive, used in woods travel.

Control is simple, and concentrated on the right hand side. One lever controls the power take-off; one lever each for the two doors; one lever for the hydraulic brake for the revolving axle.

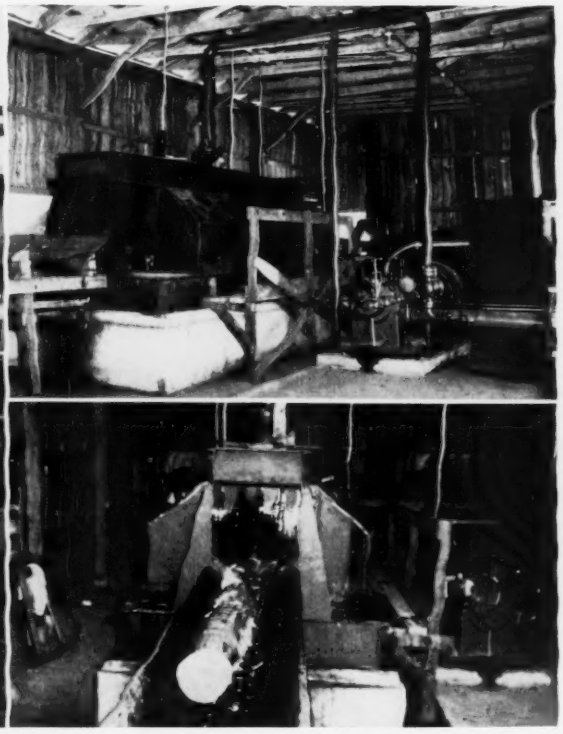
On the task visited, the crew was getting out 16 cords of peeled wood per day delivered 29 miles to the mill. The Beaumis drive on the truck permits woods

TOP VIEWS ARE OF PORTABLE WOOD BARKER *mounted on Russian jeep. Crew of three operates it. The inventor, James R. Clark of Mobile, Ala., is shown in white shirt in picture at right top. Three men with a Ford F-7 truck driver constitute the crew. Barker discharges complete load in one revolution and wood is loaded to mill from the spot.*

Lower left: Ford F-7 with removable pulpwood cradle pulled onto the truck with Gar Wood winch. The truck has dual-tandem wheels with Beaumis drive (Beaumis Mfg Co., Townsend, Mass.). Cradle capacity about 7 cords. One set of wheels is cut-out when good highway reached.

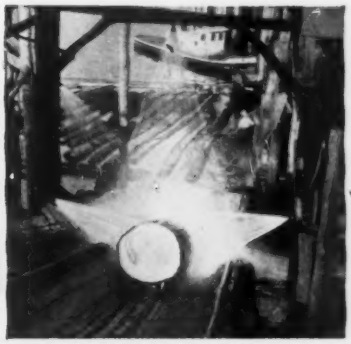
Lower right: Close-up of Gar Wood winch and slide arrangement for pulpwood cradle.

Top left: The Fitler Co. barking plant at Onward, and below: Pulpwood entering its Allis-Chalmers Streambarker.



Top right: Another Allis-Chalmers Streambarker at Derby Wood Products Co. at York, and below: Wood emerging from this barker.

Life Line FOR ANY MILL



On the log haul, Rex Log Haul and Conveyor Chains keep a steady flow of logs into the mill.

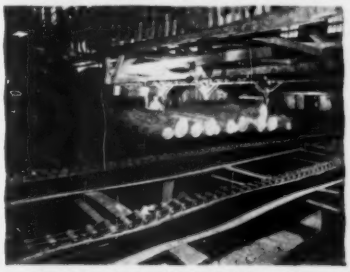
. . . REX PULP MILL CHAINS

The wood handling system is truly the "life line" of the mill. That's why so many mills have standardized on the Rex Line of Standard Pulp Mill Chains. No worries about premature chain failures to break the "life line" . . . hold up production . . . step up costs, with these husky chains on the job. They're built and designed to add life to any wood handling system . . . to keep going under loads and service conditions where ordinary chains would quickly fail.

Whether they're steel or malleable, all Rex Chains are precision-built of the finest materials . . . assembled by the most modern manufacturing methods. Modern assembly line production methods assure product quality and uniformity . . . permit closer inspection and testing.

Right through your mill, you'll benefit by standardizing on the "life line" . . . Rex Pulp Mill Chains. For all the facts, send for your copy of Bulletin 48-27. Call your local Rex Field Office or write Chain Belt Company, 1691 West Bruce Street, Milwaukee 4, Wis.

From splitter to barking drum, Rex Combination Chain, a big favorite in pulp mills, furnishes the moving power.



In a West Coast mill, Rex H-Type Chain carries logs to the debarker. Logs are stored on the chain to eliminate rehandling.

Rex Drop Forged Chain equipped with wooden flights carries hogged fuel for the boilers. Discharge is through the return run of the conveyor. Note the adjustable chutes.

CHAIN BELT COMPANY REX DRIVE AND CONVEYOR CHAINS

FIRST For LASTING Service

Now available from stock

travel, the extra wheel drive being detached when good surfaced highway is reached. The crew has maintained a record of 1656 peeled sticks in 8 hours with two men to load and a third to operate, delivering 23.9 cords (pay load) at the mill, in good working conditions.

Working from stacked pulpwood it has barked from 4 to 5 cords per hour, depending upon the wood handled. It is built with all standard parts, with moving parts easily accessible, making for efficient maintenance. The device is adequately covered by patents and patents pending. It uses about one gallon of gasoline per hour.

New Allis-Chalmers Crawler Tractors

Two new crawler tractors are being added to the Allis-Chalmers line in January, according to W. A. Roberts, executive vice president and manager of the Tractor Division. With these two new models—known as the HD-9 and HD15, Allis-Chalmers now offers a completely modern tractor in each of the four major power classes.

The new units are being produced in the company's expanded Springfield, Ill., Works. Both tractors are new "from the ground up"—with advanced design, materials and power ratings.

Spraying Plans in 1951

The Northwest spruce budworm action committee, at mid-October meeting in Portland, blocked out a million acres of Oregon-Washington timberlands for aerial spraying during 1951. Selection of this proposed spraying program of private, state and federal timberlands was based on June-July survey of 48.5 million acres of Northwest timberlands.

Wood Pusher Boat At Kapuskasing

Spruce Falls Power & Paper Co. at Kapuskasing, Ont., has developed a new pulpwood pusher boat (shown in picture).

The boat, operating on the Kap river, is 28 ft. long and has a beam of 7½ ft. and displacement of eight tons. Wheelhouse is specially designed to enable the operator, who is captain and crew combined, to easily step out on deck. The boat is equipped with a 65 h.p. Cummins diesel engine and a double drum winch.

The pusher at the prow distinguishes the Spruce Falls craft from others. The pusher is used to feed pulpwood logs to the jackladder. The vessel was built at Owen Sound, Ont.

OBSERVATIONS IN SWEDEN

Close integration between all forest industries—a trend that is already becoming increasingly evident on this continent—impressed a party of British Columbia foresters who recently toured the Scandinavian countries.

The tour was initiated by Minister of Forests E. T. Kenney, who accompanied the foresters with his deputy minister, Dr. C. D. Orchard. Among the foresters in the traveling group were John Liersch, assistant to the president and chief forester, Powell River Co.; Angus MacBean, chief forester, H. R. MacMillan Export Co.; Hugh J. Hodgins, consulting forester for Pacific Mills and B. C. Pulp and Paper Co., C. D. Schultz, consulting forester; John N. Burke, manager of the B. C. Loggers' Association, and others.

"Sixty percent of Sweden's commercial wood production is from thinnings," said Mr. Liersch. "Mechanization in the woods over there is virtually non-existent."

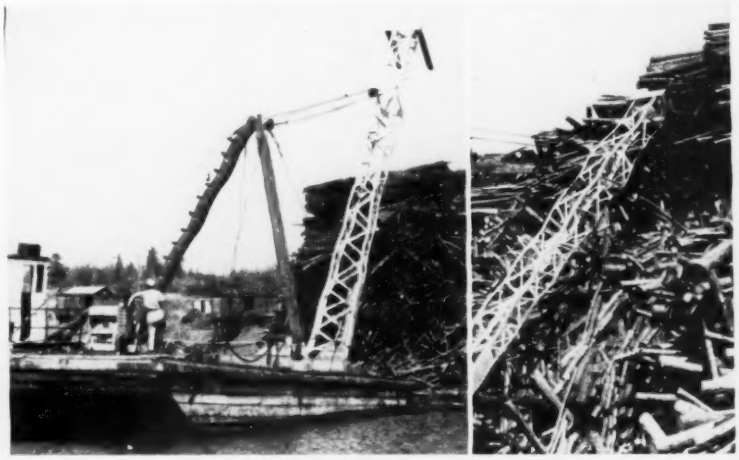
The high cost of growing forests is reflected in high stumpage rates, according to Mr. Liersch, who said that stumpage and labor costs are about equal in Sweden (on the Pacific Coast the ratio is closer to 1 to 4). With labor relatively cheap, Sweden can pay more for forest maintenance.

In Sweden 50% of the forest is in the hands of farmers and other small holders with 500 acres or less in each holding; 25% controlled by estates and about 25% by the government.

Scandinavians enjoy many advantages in the development of forest-using industries. "One of the important things they have over there that we haven't is a thoroughgoing forest-consciousness," reported Mr. Schultz. "They've lived so long with the forest and depended on it for so many generations that they place a true value on the forest."

"In Scandinavia," said Mr. MacBean, "forest management has been a job for private enterprise along reasonable lines without severe government regulation and controversy."

Some amendments to British Columbia forest legislation may be proposed as a result of the tour, according to Minister Kenney, but it is not expected that drastic revision is planned.



JOHN BUDREAU'S STEEL RAKE mounted on barge, at left, is ready to go into action on pile of pulpwood for Ontario-Minnesota Pulp & Paper Co.'s Kenora division in Ontario. At right the rake is breaking down a pile of pulpwood. It has proved effective where dynamite blasts were only partly successful, as in frozen wood.

New Rake Is Used To Break Up Wood Pile

The woods crew of Ontario-Minnesota Pulp & Paper Co. used to have a real problem on their hands in loosening and breaking up the piles of pulpwood accumulated by logging camps in the Kenora, Ont., region, for shipment to the mill.

The wood was assembled at the Keewatin storage area during the winter and by the time it was required for delivery by rail the piles were often frozen into a solid mass. Use of cable tackle and even dynamite was only partly successful in disassembling the piles.

Then John Budreau, master mechanic of the company's logging division, evolved a giant rake arrangement comprising two long forks on a 40-foot steel boom, set up on a barge and pivoting from the bottom. The winch which raises and lowers the boom is powered by a gasoline engine.

A gator is used to move the barge close to the pulpwood pile along the shoreline. The rake is raised to an upright position and when the barge moves forward the rake is lowered onto the pile. Gator and barge are then pulled away by cable from a stationary winch on the opposite shore. Weight of the rake forces the long forks into the tangled wood and the pulling motion loosens the wood and causes it to slide down into the water. This operation is repeated until there is sufficient pulpwood in the water to form a boom for the Kenora 325-ton newsprint mill.

MEMO

To: users of A.C. adjustable Speed Drives

From: THE LOUIS ALLIS CO.

50th YEAR

Only SELECT-A-SPEDE

offers the NEW MAGNETIC AMPLIFIER CONTROL
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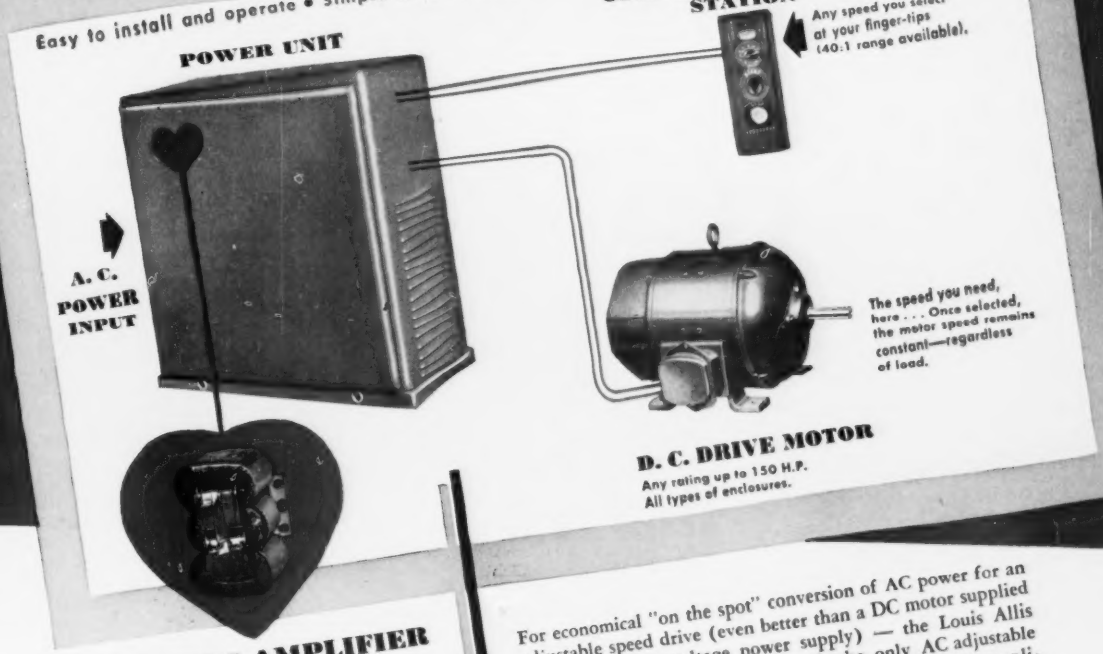
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Any speed you select at your finger-tips (40:1 range available).
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The speed you need, here . . . Once selected, the motor speed remains constant—regardless of load.
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Any rating up to 150 H.P.
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The Magnetic Amplifier, a self-saturating reactor, like a transformer, contains no moving parts — no parts requiring maintenance or periodic replacement. Its function in the Select-A-Spede, is to constantly regulate the field currents of both motor and generator. It requires no "warm up" period, has an extremely fast response to changing conditions, and is completely reliable at all times.

For economical "on the spot" conversion of AC power for an adjustable speed drive (even better than a DC motor supplied from a constant voltage power supply) — the Louis Allis Select-A-Spede is unsurpassed. It is the only AC adjustable speed drive offering the advantage of the new magnetic amplifier control — with close speed regulation at all rated speeds and loads.

The Select-A-Spede also offers a variety of optional features, such as: reversing, dynamic braking, jogging, sequence control, controlled acceleration, interlocked slow speed start, multi-motor drives, etc. It is possible to provide a Select-A-Spede Drive to exactly suit your special requirements.

For further information, contact your nearest Louis Allis Application Engineer or write for Bulletin 1100-B.

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FARM FIBERS MEETING

PHOTOGRAPHED IN ACTION AT PEORIA TAPPI meeting were these speakers (l to r): Dr. S. I. Aronovsky, of the Peoria U. S. Research Laboratory; Carl G. Krancher, Mill Mgr., Ball Bros. Co., Noblesville, Ind.; L. E. Eberhardt, Bauer Bros., Springfield, O.; Sven Fahlgren, Bird Machine Co., South Walpole, Mass., and Lester F. Herman, Gruendler Crusher & Pulverizer Co., St. Louis.

The TAPPI Fall Meeting on Fibrous Agricultural Residues, at the Northern Regional Research Laboratory, Peoria, Ill., Nov. 13-14, brought out 70 mill men, engineers, and manufacturers' representatives.

Talks covered a wide range of interest to the strawboard industry, and a feature of the program was the brevity of the papers.

Dr. R. T. Milner, director of the Northern Laboratory, welcomed the group.

A discussion on "Why cut straw?" was led by M. L. Rankin of Taylor, Stiles and Co. who said that cutting was cheaper than grinding. He listed the following advantages of cutting straw prior to cooking: Digesters can be completely charged at one filling; less time is consumed in emptying the digester if straw is precut; cooking is more uniform; necessity for large breaker beaters or other devices to chop and defiber the cooked straw is largely eliminated; and time and labor per ton of pulp are reduced considerably.

William H. Palm of Hinde and Dauch Paper Co. of Canada described his company's mill at Trenton, Ontario. The straw is pre-chopped with a Taylor-Stiles straw cutter and bale breaker. Cooked straw from 10 rotaries falls onto an inclined floor to a canal which runs the length of the digester building. From the canal straw is hosed to a 9000-pound Tugboat equipped with washer drums. The stock from the Tugboat is bled off continuously to the refining system where it is mixed with paper stock. Corrugating paper is made on a 120-inch machine.

The development of the Jonsson screen for paper stock was described by Sven Fahlgren of Bird Machine Co. A recent use for this screen, he said, is for knotting kraft pulp ahead of the brown stock washers, with advantages of better black liquor recovery and maintenance of a high vacuum on the washers.

L. E. Eberhardt of Bauer Bros. gave a report on disc refining of strawboard pulp. Experimental pulp made at the Northern Laboratory by mechano-chemical soda cooks was refined in commercial disc mills at the Springfield, Ohio, Fiber Products Laboratory.

A report on the Turbo pulp refiner was made by Lester F. Herman, Gruendler Crusher and Pulverizer Co., who presented data on an experimental mechano-chemical straw pulp for corrugating, and on wood pulp. It was shown that stock hydrates to a high degree with a relatively low reduction of freeness. There was relatively little reduction in fiber length of pulp.

C. G. Krancher, mill manager, Ball Brothers Co., Noblesville, Ind., discussed the operation of the Hydraclone in cleaning up strawboard pulp. In a 3-week period the removal of rejects averaged about 1¼ pounds per ton of pulp. Use of this cleaning unit results in the manufacture of cleaner paper with fewer breaks in the press section of the paper machine.

Ohio Section Honors its Past Chairmen

A 15th anniversary meeting of the Ohio TAPPI section on Nov. 9 in Middletown, O., was featured by awards of fountain pen sets to past chairmen. The awards were made by Vincent F. Waters, first chairman (1935-8), after receiving his from Don Goodman, present chairman. They were to:

H. H. Latimer, 1938-39; J. E. Burdsall, 1940-41; Harry C. Fisher, 1941-42; Carl D. Roess, 1942-46; Samuel R. Olsen, 1946-47; Philip S. Cade, 1948-49; Arthur Thurn, 1949-50.

Two past chairmen receiving the tokens but unable to attend were K. P. Geohegan, 1939-40 and D. M. Yost, 1947-48.

HERBERT T. RANDALL, Champion V. P., tells Ohio TAPPI of his trip to Scandinavia and Britain and visits to 21 mills, seven large labs, three machinery plants and seven clay mines, 5,000 miles by auto. DON GOODMAN (center) is the Ohio Chairman and VINCENT F. WATERS (right) was first Chairman

HEMPHILL TALKS PACKINGS

The Packing Clinic put on by J. W. Hemphill (shown in picture) manager, Pulp and Paper Industry, Johns-Manville Corp., New York, at the Nov. 16 meeting of the Michigan Division of the Superintendents Association was attended by about 50 persons.

Harry E. Weston, secretary-treasurer of the association, was moderator.

Mr. Hemphill stated that the importance of best possible packing procedure is revealed in savings in reducing wear and tear on equipment, in reducing shutdown time, and in less maintenance. He estimated 18% to 24% of total power used in a mill is required to move stock solutions, white water, and other fluids; and commented that any savings in power that can be accomplished in such operations through the proper handling of packings represent so much cost reduction.

In his opinion, 25% of service life is built into the packing itself, 75% in how it is installed and handled. Mr. Hemphill stressed that packings are not intended to serve as bearings for holding equipment in alignment.

In covering proper packing procedure, he said: "Remove all old packing and thoroughly clean the stuffing box. Check water lubrication inlets and connecting piping to be sure they are free from obstructions. Apply a liberal coating of cup grease or heavy oil or other permissible lubricant inside the stuffing box. Use correct size of packing. Cut each ring over the rod or mandrel of same size. Never spiral a packing into a stuffing box in one piece. In cutting rings from soft packings, you may find it advantageous to use a piece of black tape around the packing at the point where it is to be cut. . . . The tape should be removed when installing the packing. Experience indicates that a plain butt joint is as satisfactory as step or sieve joints. When installing a ring of packing, gently form the ring around the shaft, entering joint or cut ends in the box first. Then push the ring home, keeping packing square with the shaft. Seat each ring individually in the stuffing box. A split bushing of proper length that can be placed over the shaft between the shaft and the inside of the stuffing box makes a handy tool for seating rings."

MICROBIOLOGICAL SURVEY
Paper Gets Clean Bill of Health

(See Editorial on Page 33)

A report entitled "Microbiological Survey of the Pulp and Paper Industry," conducted by the Institute of Paper Chemistry, has been issued by the APPA.

The bacteriological analyses of the 4076 samples of paper and paperboard representing 49 different grades of paper produced by 37 different paper mills geographically distributed throughout the U. S. showed that paper, from a public health point of view, is an excellent medium for the packaging of foods.

The bacterial count of most of these samples is, in general, very low, although some of the samples had a relatively high bacterial count. The high bacterial count can be attributed, in some cases, to the waste paper used, which comprised a portion or all of the furnish and/or to a relatively high population of nonpathogenic spore-forming bacteria in the mill system. These spore-forming bacteria either adhere to the fiber or are retained by the fibrous mat when it is formed on the wire or on the felt as the case may be. The spores of these bacteria survive the lethal action of the dryer rolls. Therefore, because of the presence of this type of organism, it is possible for a mill which is kept scrupulously clean to occasionally produce a paper or paperboard which contains a large number of these saprophytic organisms in the paper. It is, of course, virtually impossible to process paper in a completely sterile system or atmosphere. Even if it were possible to produce paper under such conditions, the merits of such a process would be questionable because the foods which are packaged in paper containers today contain large numbers of bacteria, some of which may be pathogenic.

Large numbers of coliform bacteria have been isolated from various foods which are sold on the open market. Therefore, *it is significant* that coliform bacteria have not been isolated from any of the paper samples analyzed in this microbiological survey, regardless of the type of pulp used in the manufacture of the paper, said the report.

On the basis of the data collected in this survey and the various published articles on the lethal effect of the various papermaking processes upon those bacteria which are significant in the field of public health, it is logical to raise the question of the public health significance of a microbiological code which would limit the use of paper which has a total bacterial count of more than 250 saprophytic bacteria per gram of disintegrated fiber.

The data collected in this survey show that 72% of the paper samples analyzed had a bacterial count of less than 250 bacterial colonies per gram of paper, which is a remarkable record. The data show further that 98% of the samples analyzed for surface bacterial count had less than one bacterial colony per square centimeter. These data show, therefore, that the paper manufacturer normally makes a paper with a low bacterial count.

The present-day operator is cognizant of the value of adequate microbiological control in his mill; hence, he is continually striving to produce paper and paperboard under those conditions which are deleterious to bacteria and optimum for the production of sanitary grades of paper and paperboard, concluded the report.

NEW LOCKPORT FIELD MEN

MARVIN C. JONES (left), former Mill Mgr., Springfield, Ore., Weyerhaeuser Timber Co., and CHARLES E. "Bud" MUELLER (right), native and resident of Kalamazoo, Mich., where he has been in industry sales work for many years, have joined Lockport Felt Co., and they will divide the nine-state Middle Western territory formerly covered by the late TOM GILLESPIE, of Lake Villa, Ill. Mr. Mueller takes over Michigan, Minnesota and Wisconsin and will continue to live in Kalamazoo. Mr. Jones, who was Chief Engineer and Purchasing Agent of Michigan Carton Co., for many years and well known in the Midwest before going to Springfield, will probably find a new home in Indiana or Illinois for his family and will cover those states plus Ohio, Iowa, Kansas and Missouri.

Marvin C. Jones, former mill manager for Weyerhaeuser at Springfield, Ore., and Charles E. "Bud" Mueller, long in industry sales out of Kalamazoo, Mich., have joined Lockport Felt Co., according to announcement by Raymond J. Lee, Lockport's executive vice president at Newfane, N. Y.

These two well known industry figures will divide up the territory formerly covered by the late Tom Gillespie, of Lake Villa, Ill. Anyone aware of the fabulous career of Mr. Gillespie, whose experiences and stories are certainly going to become a much-repeated part of the lore of Middle West mills, would say there is *no* reflection on the abilities of anyone to divide up his territory—and Mr. Jones and Mr. Mueller are the first to say so. It was a vast territory for a mill salesman and Mr. Jones will take over Ohio, Indiana, Illinois, Iowa, Kansas, and Missouri; Mr. Mueller will take Michigan, Minnesota and Wisconsin.

Mr. Jones went west to be manager during construction and during first year of operation at Springfield. He had been many years at Michigan Carton Co., Battle Creek, Mich., as purchasing agent, chief engineer and a company director.

A son of Marvin and Martha Jones, Malcolm, formerly in the purchasing department for the mill at Springfield, was called into the army Nov. 1 to Fort Ord, Calif. A daughter, Miriam, will stay on at the University of Oregon. The other daughter, Saralynne, will accompany her parents in search of a new home in Illinois or Indiana.

Mr. Mueller is a native of Kalamazoo where he will remain and has been in the paper trade business for 26 years, including 18 in the Middle West.

New Hardboard Process

Construction of a $1 million hardboard plant of 2 to 3 carloads daily capacity was started in December by Cascades Plywood Co., Lebanon, Ore. By an entirely new dry process, hardboard will be manufactured in thicknesses varying from 1/32" to 2".

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Motorless Industrial Floor Sweeper

A new unpowered, inexpensive sweeping machine, which is turning in faster and better jobs than many of its more elaborate and expensive counterparts, is finding acceptance in some paper mills.

Handling Devices Co., Inc., of Boston, who sell the Plantman Sweeper, state a sweeping width of 20 inches can be covered, collecting sandings, tin, trash, and sizeable scraps. The machine works best at walking speed and all dirt is whisked in one operation into a detachable aluminum hopper. The sweeper weighs only 48 pounds. Write for descriptive booklet to Handling Devices Co., Inc., 581 Boylston St., Boston 16, Mass.

Anacortes Improvements; Study Hydraulic Barking

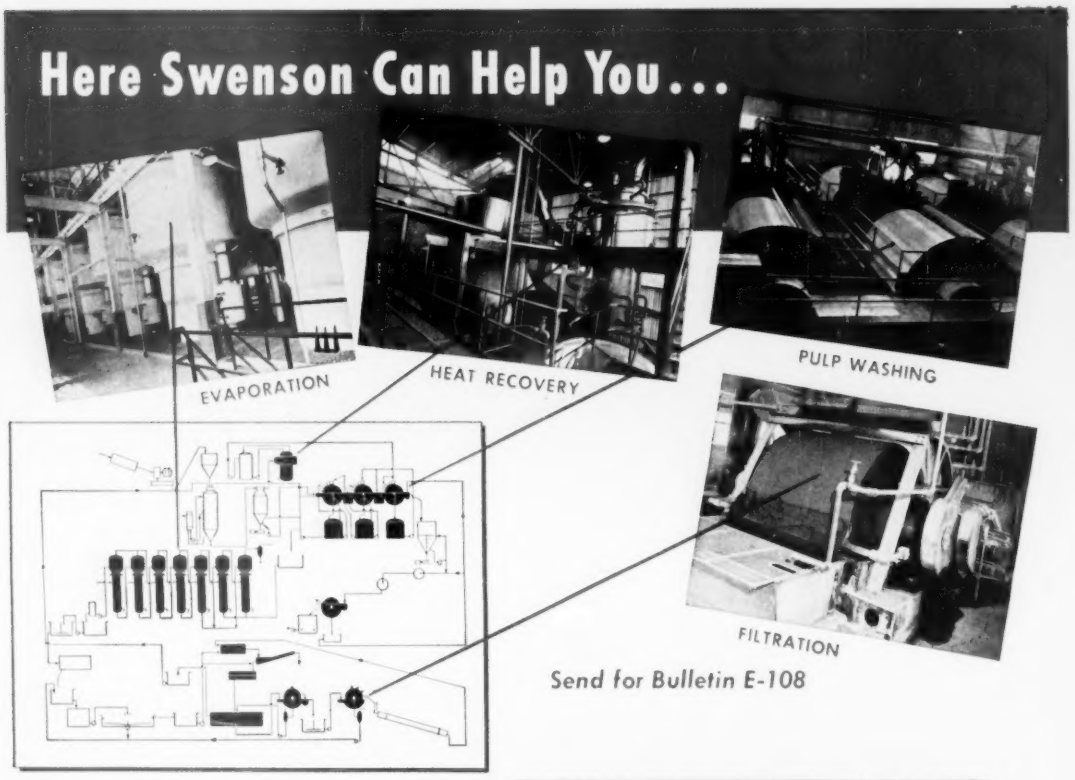
A program of replacement and construction of the acid plant at Coos Bay Pulp Corp. sulfite mill, Anacortes, Wash., has been contracted to the G. D. Jenssen Co. Inc., Watertown, N. Y., represented by A. Halvar Lundberg, of Seattle, according to C. Wylie Smith, vice president and general manager of the pulp company, subsidiary of Scott Paper Co.

Possible installation of hydraulic log barking is also under study by the Coos Bay management. Local mill manager is Jesse Lewis; plant engineer is Walter Miller.

About $80,000 will be spent on the acid plant, the work to be completed by about Jan. 15. Stainless steel valves from Electric Steel Foundry Co.; stainless steel Worthington pumps, Northwest Lead piping and two 90 ft. wooden towers to be built by Brooks Lumber Co. of Bellingham are included.

Lutz Engineered Addition

In a picture caption on Blandin Paper Co. in the Dec., 1950, issue, we credited engineering as well as construction of the supercalendering addition to Paul A. Laurence Co., of Minneapolis. This company did do the construction work but engineering work at Blandin on all major projects has been done by R. E. Lutz of Helmick, Edeskuty & Lutz of Minneapolis for about 20 years.



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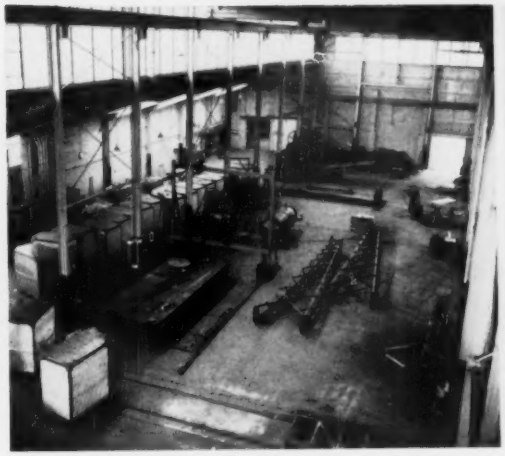
- Surface Condensers
- Turpentine Condensers • Causticizers

NEW STEEL FABRICATION PLANT

GENERAL VIEW OF THE NEW PUGET SOUND SHEET METAL WORKS PLANT IN SEATTLE. OFFICES IN FOREGROUND, CENTER.



LEFT—ONE OF THREE BAYS in Puget Sound Sheet Metal Works' new plant, showing variety of structural and fabricating work done. A pulp mill evaporator can be seen squarely in the center, on the floor. Also shown are cargo boxes, on left, and transmission towers, on right.

RIGHT—FIRST LUKENS STAINLESS STEEL CLAD TANKS ever made for pulp industry in West, fabricated by Puget Sound Sheet Metal Works, are shown in this picture. The two tanks, one behind the other, at lower left corner, with Jennsen towers behind them and pulp mill at right. These are acid and waste liquor 26-ft. tanks, each 120,000 gals. capacity, installed two years ago at Puget Sound Pulp & Timber Co., Bellingham, Wash. This mill uses waste liquor in alcohol plant. The Seattle plant recently made two more 24 ft. Lukens-clad acid tanks and has crew erecting them at Crown-Z at Camas, Wash.

The remarkable growth of the Pacific Coast industrially is nowhere more strikingly exemplified—especially for the pulp and paper industry—than in the new and ultra-modern $1,000,000 six-and-one-half-acre sheet and steel plate fabrication plant of Puget Sound Sheet Metal Works in Seattle.

The name of the company, though valued and widely known after 50 years in business, is really a misnomer today, because of the specialty lines of work it has gone into since its modest beginnings. It has specialized for pulp and paper and oil companies, and brewing and other industries in custom fabrication of difficult stainless steel, nickel, Monel and other alloy casings, fittings, tanks, etc. It is an applicator of Saran and Lithcote linings.

For the specialty jobs it does, Puget Sound Sheet Metal Works now has a plant which compares with any in the nation and is now the largest and most complete facility of its kind in the Pacific Northwest. It has kept pace with an industrial Pacific Coast which has grown to adulthood since the war.

It has built from scratch multiple-effect type evaporators. It has constructed casings for large boiler plants. It has made heat exchangers, stainless steel fittings to handle high acid content pulp cooking liquors and tanks for liquor and acid. It has made the first Lukens-stainless steel clad tanks for pulp mills in the Far West. It has fabricated Armco stainless steel for pulp mill systems and done various jobs with stainless and alloys supplied by Electric Steel Foundry Co. and Eagle Metals. It has fabricated jobs for the mills with International Nickel products. It has an exclusive license for Western States for the application of Lithcote linings to metals and has found more interest in this in the pulp mills for some purposes since some alloys have become harder to get. Lithcote has been successfully used in many Canadian mills.

It took a fire which completely destroyed the smaller and older Puget Sound Sheet Metal Works plant on a January Sunday morning in 1949 to bring into being this new plant. In the new plant are cranes of 30 tons capacity, on rails 45 ft. above the floor, serving over 800 feet of craneways 50 ft. wide. Transfer trucks and monorails connect the various bays and buildings. There are plant wide systems for distributing electric power, compressed air and gas.

Six buildings comprise the new plant: a 211 x 222 ft. plate fabricating shop, 45 ft. high to the bottom of trusses, with opalescent plastic skylight; an 84 by 120 ft. sheet metal shop; a sand blasting building, painting and coating building; machinery storage building; roofing materials storage building with adjacent covered area. The new brick and cedar siding office building with engineering and filing rooms and facilities of most modern design is not the least important of the new structures.

Puget Sound Sheet Metal Works was founded in 1900 by David W. Bowen, who died in 1944. His son, Harry S. Bowen, is president. George T. Dexter and Beth Bowen King are vice presidents. Helen M. Schultz is secretary. Jack Ward is general superintendent. Gordon B. Anderson, in charge of the roofing and sheet metal department, generally represents the company in contacts with the pulp and paper industry.

ONE OF MOST INTERESTING JOBS done at Puget Sound Sheet Metal Works for the pulp industry was this Armco 316 E. L. C. stainless fitting for the Soundview Pulp Co.'s SO$_2$ Recovery System installed in recent years at Everett, Wash. Puget Sound was selected by Electric Steel Foundry to do this.

PUGET SOUND SHEET METAL WORKS fabricated this Swenson evaporator equipment for Kraft pulp mill additions at St. Regis Paper Co.'s Tacoma, Wash., Division, currently under way. These are parts of a seven-effect evaporator, partly Inco Monel-clad and partly mild steel.

Personals

News About Industry People From Coast to Coast

MRS. "QUICKIE" JOHNSON and *MRS. MARGARET DOZIER* of Rhinelander, Wis., recently made a trip to Everett, Wash., where they visited the Russell LeRouxs, then to California and back home by way of St. Louis, where Mrs. Johnson's son, Bud is sales manager for Rhinelander Paper Co. They are widows of two former top operations officials of the Rhinelander mill, F. W. Johnson and Lewis Dozier.

T. R. PROBST, for the past two years assistant to mill manager at Oxford Paper Co., Rumford, Me., recently affiliated with Oregon Pulp & Paper Co. and Columbia River Paper Mills as assistant to the general manager. He graduated from Institute of Paper Chemistry in 1939 and has since been working in pulp and paper industry. *FRANK PERUTZ*, resident engineer of New York for Snia Viscosa, said to furnish about 90% of the rayon viscose in Italy, told a meeting of ASME recently that his mills were producing 44,000 tons a year from domestic cane pulp, which had saved the day on raw supply.

PAUL EASTWOOD is new technical superintendent at Kimberly-Clark's, Kimberly, Wis., mill. He succeeded *ART BELLINGHAUSEN*, who moved to Neenah, Wis., to join the central technical staff of the corporation.

HOMER P. ST. CLAIR, former chemist at Hawthorne Paper Co., Kalamazoo, Mich., has been appointed production engineer for the Panelyte Division (plastic products) of St. Regis Paper Co., at Kalamazoo.

P. W. FIELD, formerly sales manager of Sidney Roofing & Paper Co., Vancouver and Victoria, B. C., died recently at his home in West Vancouver, the municipality which he once had served as reeve. He was a banker in Buenos Aires and San Francisco before joining the British Columbia paper company.

WILLIAM GOUDY, for many years public relations director for Rayonier, Inc., to which he came from Union Carbide, is justly proud of a new color series of Rayonier advertisements for 1951 in the textile and business fields. Mr. Goudy is planning a tour of Rayonier's west coast mills in 1951.

Gay Heads Printing Papers

Roy K. Ferguson, president of St. Regis Paper Co., announces that mill managers of the company's Printing, Publication and Converting Paper Division, including the Central Laboratory, will report to E. R. Gay, vice president and director and head of St. Regis' Kraft and Multiwall Bag Division since resignation of Ben Cancell, former vice president for printing papers.

JACK DICK, service engineer, Dominion Engineering Co., Lachine, Que., went to Tasmania in November to start up the No. 2 newsprint machine at the Australian Newsprint Mills, Ltd., at Boyer. The new unit will add 240 tons daily.

MISS IDA GIACOPASSI is now general manager of Windsor Locks Paper Co., Windsor Locks, Mass., and operates it for the Cohen management out of her 18 years experience in the historic mill. Industry experts in the Holyoke area claim she has been able "to get more out of the equipment" than any predecessor there and she is at present studying types of paper reclaiming processes and machinery.

G. M. WHITE, timber superintendent of St. Helens Pulp & Paper Co., St. Helens, Ore., resigned the first of December. *BRICE HAMMACK*, assistant timber superintendent, has been placed in charge pending appointment of the new superintendent.

EDWARD J. SULLIVAN, recently resigned as eastern sales manager of Gould Paper Co., will establish a selling agency in San Francisco about Jan. 1, 1951, to act as manufacturers' representative in the increasing Pacific Coast market area. Mr. Sullivan has been with Oxford Paper Co., Fraser Paper, Ltd., Price & Pierce, Ltd., and Dennison Mfg. Co., during his 25-year career.

WILLIAM A. HANWAY, secretary of the International Paper Co., New York, and one of the best informed men in the industry, was solicitations chairman for the willing paper and pulp targets in the Greater New York Girl Scout Fund drive, which at last reports was close to its $500,000 goal.

HARRY SPENCER, manager, Beauharnois Div., Howard Smith Paper Co. of Quebec, addressed the Nov. 16 meeting of the Empire State Section of TAPPI on "What We Don't Know about Paper Manufacturing."

ON THE LEFT is ROY H. BREYFOGLE, Vice Pres. in Charge of Manufacturing, and ON THE RIGHT is R. FRANK HOLLIS, General Superintendent, who have adjoining offices at the big Alton Box Board Co. of Alton, Ill.

And now that we have that straightened out, we hope this will permit these two good friends to go back to living their normal lives again. When we published our Alton Box Board exclusive illustrated feature in a recent issue, the printers inadvertently switched the cuts of Mr. Breyfogle and Mr. Hollis. According to unconfirmed rumors from the catfish country around St. Louis and Alton, these two gentlemen have had no end of trouble trying to live up to their "alleged" pictures. Mr. Breyfogle, for instance, was said to have endangered his health trying to smoke Mr. Hollis's underslung pipes and strong tobacco. And Mr. Hollis has been like a fish out of water—unconfirmed report, of course—trying to act as dignified as he looked in Mr. Breyfogle's picture. This sets everything right again—we hope.

About "Red," "Lefty," and Paul Smith

One sports event this winter of interest to many pulp and paper people was appointment of Richard "Red" Smith, former N. Y. Giants baseball coach, as the new general manager of the Milwaukee Brewers in the American Association of baseball. He is widely known in the Midwest mills as a son of Paul Smith, former superintendent of Combined Locks, Northwest and Blandin paper mills, and as a brother of L. J. Lester (Lefty) J. Smith, now plant manager at Gould Paper Co., Lyons, N. Y., and formerly at St. Regis in Kalamazoo and at Combined Locks. "Red" worked in Fox River Valley mills himself.

J. E. "DUSTY" RHODES, formerly superintendent of Sorg Pulp Co., at Port Mellon, B. C., has joined the Columbia Cellulose organization at Watson Island. Two men who played an important part in the preliminary research for the Columbia Cellulose Co.'s new mill in British Columbia, *MERVIN MARTIN* and *ROY EVANS*, have assumed their new positions with the Celanese subsidiary as technical supervisor and operating superintendent, respectively. They have been with Celanese at Cumberland, Me., Mr. Martin having been manager there. Mr. Evans was formerly with Price Bros. and Bathurst. *D. D. CARRHARRIS*, formerly of Anglo-Canadian, has been appointed plant engineer.

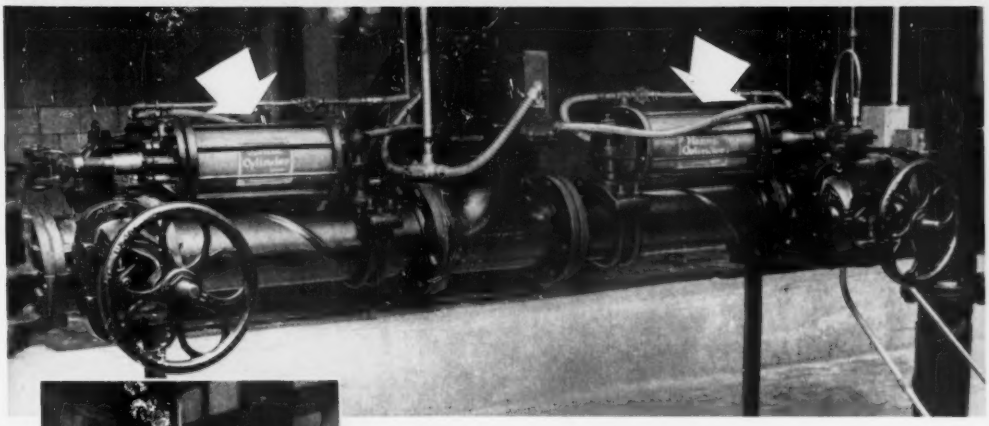
J. L. CAMP, JR., top executive of the Camp Manufacturing Co., Franklin, Va., has been elected to the board of directors of American Forest Products Industries to succeed *P. H. GLATFELTER*, president of P. H. Glatfelter Co., who continues as treasurer of the educational forestry organization. Others who attended the meeting at Washington's Mayflower Hotel included Col. W. B. Greeley of Port Gamble, Wash., board chairman; Walter S. Damtoft, Champion Paper and Fibre, Canton, N. C.; Clyde S. Martin, Weyerhaeuser Timber Co., Tacoma; C. O. Brown, International Paper, New York; James L. Madden, Hollingsowth and Whitney, Boston; William Hilton, Great Northern Paper, Bangor, Me.; Charles H. Sage, Kimberly-Clark, Neenah, Wis.; Sidney Ferguson, Mead Corp., New York; and G. W. E. Nicholson, representing Union Bag and Paper's president, Alexander Calder.

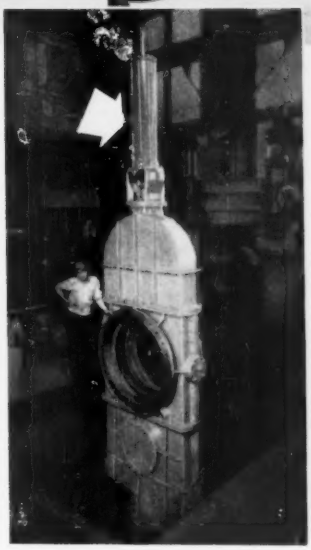
ANDREAS CHRISTENSEN, pulp mill manager, Spruce Falls Power & Paper Co., Kapuskasing, Ont., spent a few days on the west coast in October, and revisited scenes of his former activities while technical chief for B. C. Pulp & Paper Co. at Woodfibre and Port Alice.

H. E. MILLER, president of Columbia Paper Co., Vancouver, and president of the Canadian Paper Trade Association, has returned from a tour of Europe with *W. J. BARCLAY*, vice-president of Powell River Sales Co.

JOHN M. MILLER has been promoted to superintendent of electrical engineering at Camas, Wash., plant of Crown Zellerbach Corp. He replaces *C. F. STEVEY* who retired from this position first of August, having worked at the plant 37 years. Mr. Stevey has been credited with developing several of the plant's electrical improvements.

VALVES TO CONTROL?





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WHAT about your plant? Are there valves in hard-to-reach places requiring considerable time and trouble — or risk of injury — to operate by hand? Complicated piping arrangements don't always provide for positioning of valves at desirable locations. But, there is an efficient, economical solution to this problem—with Hanna Pneumatic or Hydraulic Cylinder Power.

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NEW CANADIAN BLEACH PLANTS

Modernization at La Tuque

North America's largest market sulfate plant is Brown Corp.'s mill at La Tuque, Que., which has undergone an extensive modernization involving installation of new machinery and equipment designed to increase and improve production.

Latest features of the program at La Tuque are a new chemical recovery unit for kraft mill recovery and additional digester replacements.

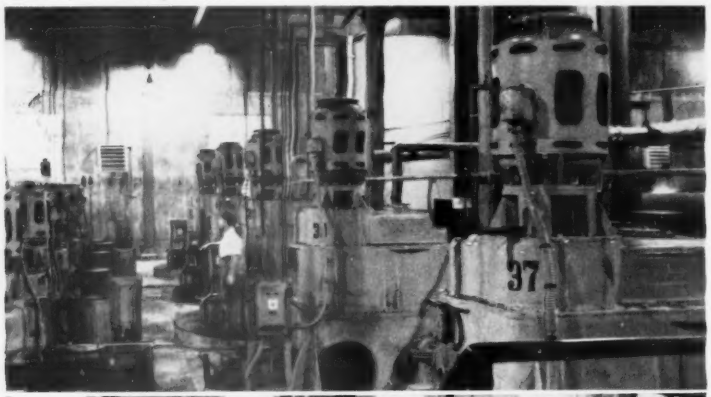
Modernization has, to a great extent, rendered the La Tuque mill new in process, structure and equipment, in the past few years.

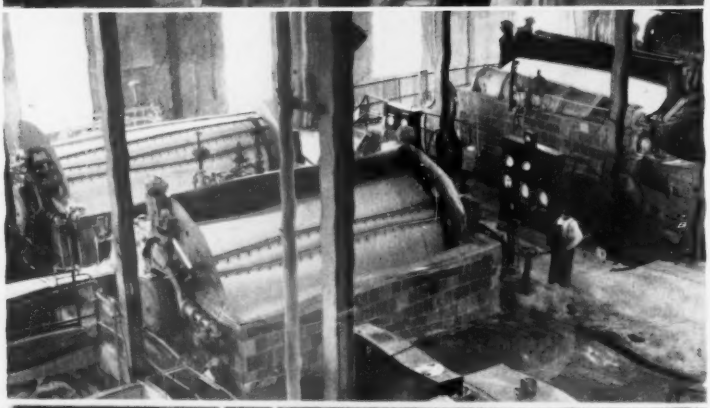
A 200-ton combination engineering recovery furnace was installed in 1943, adding much to the efficiency of the recovery system. The same year saw a 150 ton Nyman-Swenson washer brought into operation. A Newton dryer, the plant's second, was installed three years later. Capacity of this unit is 300 tons daily.

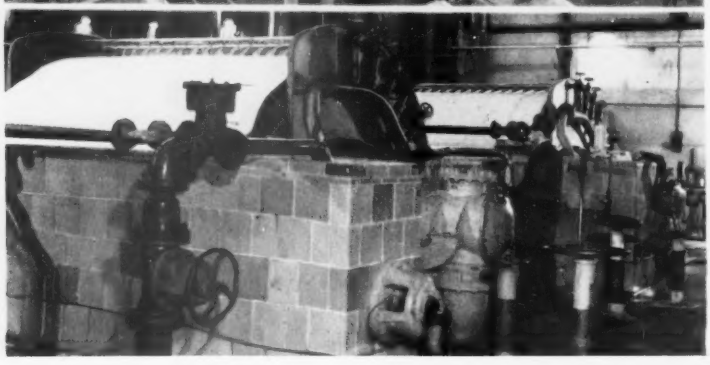
TOP VIEW—Eleven high density batch cells in 300-ton cellate bleachery of Brown Corp. at La Tuque, Que. Agitator drives were provided by Western Gear Works, Seattle; tile lining by Canadian Stebbins and instrumentation by Bristol.

MIDDLE VIEW—Operating floor of the 300-ton cellate bleachery, La Tuque, showing three of 8 ft. x 16 ft. Sherbrooke washers.

LOWER VIEW—Two 8 ft. x 10 ft. Oliver vacuum washers in 150-ton semi-bleachery, with tile lining by Stebbins.







W. B. BECKLER JR. (left), Works Manager at Brown Corp., La Tuque, Que.

A. E. PENNEY (right), who just recently was transferred to the parent company, Brown Co., Berlin, N. H., as Assistant to the Works Mgr. He was Supt. at La Tuque. He was succeeded in that post at La Tuque by JOHN GRIEVE.

A new screen room was added also.

A year and a half ago a significant phase of Brown's modernization began—construction of the new bleachery planned to produce "Cellate," (fully bleached kraft) pulp at the rate of 300 tons daily. O. C. Schoenwerk, of Chicago, served as consulting engineer in both design and construction stages.

A new technique was followed in erection of the building. The walls are of poured concrete, which were formed between plywood panels. These panels were held together with Symons form hardware and were used as the wall grew from the ground up.

Six continuous towers and eleven batch cells comprise the bleachery. Two of the towers, approximately 17 ft. in diameter and 35 ft. high, are equipped with Paper Machinery Ltd. Kamyr agitators. Agitator drives for the high density batch cells were provided by Western Gear Works, with tile lining by Canadian Stebbins Engineering & Machinery Co., and instrumentation by Bristol. Canadian Vickers built the James A. Brinkley agitators with which the other towers are furnished.

The washers, six in number, and the stock meter, are products of Sherbrooke Machineries, Ltd. Link-Belt conveyors transport the high density stock.

To insure the minimum amount of contamination from rust and scale, stainless steel and transite piping have been used throughout the plant. With the exception of the chlorination tower, which is rubber lined, all the tanks and dump chests are tile lined by Stebbins.

After bleaching the pulp is again subjected to screening and is passed through dirt separators. This operation collects any heavy particles which might be present. A Minton dryer then dries the pulp.

MacMillan Bleach Plant Near Completion

The bleach plant to operate in connection with the new 250-ton sulfate mill of the H. R. MacMillan Export Co., at Harmac, near Nanaimo, Vancouver Island, is nearing completion, and its operation will be followed with interest by technical

and operating men throughout the industry.

The 8-stage Kamyr bleach plant is one of the first in North America to use chlorine dioxide. The Holst and Husun process is followed, the use of chlorine dioxide in the additional stage of bleaching being designed to produce pulp of unusual whiteness.

Paper Machinery, Ltd., of Montreal, supplied the Kamyr machine and related equipment. Similar rights to supply Kamyr equipment are held in the U. S. by Sandy Hill Iron & Brass Works of Hudson Falls, N. Y.

There are eight bleach washers, four supplied by Oliver United Filters, Inc., of New York, represented in Canada by E. Long, Orillia, Ont., and four by Sherbrooke Machineries, Ltd., of Montreal. and deckers were supplied by the same companies.

Most pumps were installed by Bingham Pump Co. of Portland, Ore., and Canadian Ingersol Rand of Montreal. Electrical units were supplied by Canadian General Electric and English Electric Co., the latter providing the vertical motors for the Bingham pumps. Dominion Bridge Co. of Montreal and Vancouver built the bleach tower. Canadian Stebbins Engineering & Manufacturing Co. put in the ceramic tile lining for the tower.

The sulfur burning system and S02 gas system were provided by A. H. Lundberg of Seattle, who represented G. D. Jenssen Co., of Watertown, N. Y., and also American Heat Reclaiming Corp. of New York, which supplied the Rosenblad spiral heat exchanger, through Paper Machinery, Ltd.

Chest agitation equipment was supplied by Alexander Fleck, Ltd., Ottawa, affiliate with Black-Clawson-Shartle-Dilts.

Twelve 14-plate flat screens were installed by Waterous, Ltd., of Brantford, Ont., whose West Coast affiliate is Heaps, Waterous, Ltd., New Westminster, B. C. Heresite coatings and stainless steel pipe were by Industrial Coatings, Ltd., of Vancouver.

Stock chest valves—67 of them—of fabricated stainless steel were supplied by Fabri-Valve Co. of America, associated with Northwest Copper Works, Portland, Ore. Wire for the washers was manufactured by the Johnson Wire Works of Montreal. Screen plates were from Union Screen Plate of Canada, of Lennoxville, Que. Much of the instrumentation was by Foxboro Co.

Minneapolis-Honeywell Regulator Co. controllers and circulating pumps were among the equipment, with special temperature controls on the solenoid valves.

Electric Steel Foundry of Portland and Vancouver built the stainless steel headers on the bleach towers, and Farnes & Martig, Inc., of Portland, were responsible for the flowraters.

S. BERGSTROM, of Stockholm, who claims to have developed with his father a process for removing objectionable odoriferous substances from pulp mill vapors, has been visiting eastern Canadian mills.

AN OPERATION IN THE BORING MILL OF THE VALLEY IRON WORKS, Appleton, Wis., is being viewed here by TAKESHI IWAKAWA (right), of Tokyo, President of Chuetsu Printing Co., and Chuetsu Pulp Industry Co. *Left to right in picture are:* TALBOT PETERSON, *son of R. A. Peterson, President of Valley Iron Works;* JACK K. YASUTAKE, *interpreter and director of a Chicago welfare agency, and* Mr. IWAKAWA. Talbot Peterson is employed in Valley's sales department and was an infantry officer in the World War II in Europe.

Japanese Paper Mills Operating at Full Capacity

Declaring he was in the market for second hand papermaking machinery but that new machinery was far too expensive for Japan, Takeshi Iwakawa, of Tokyo, president of Chuetsu Pulp Industry Co., which operates 15 pulp and paper mills in that country, was recently touring this continent.

Pictured at the Valley Iron Works, the above photograph shows him in Appleton, Wis., on the same day that he toured Consolidated Water Power & Paper Co.'s Interlake sulfite pulp mill. He visited other mills on the Wisconsin River before heading for New York and was returning home via the Pacific Northwest.

Paper mills in Japan are operating full speed but the country must import much paper to meet its needs, according to Mr. Iwakawa.

Japanese paper is of very poor quality, he said, explaining that his mills produce mostly newsprint. Better grades of paper are imported and much pulp is shipped in from Sweden, he said.

Source of supply for the Japanese paper mills is pine, but of much smaller stature than American pine, the industrialist said. Japan's already limited timber supplies were reduced even more after World War II, he explained, when Russia occupied the entire Sakalin island which had been a major source of pulpwood.

Oregon Mills Satisfy
State Sanitary Authority

A report by Oregon state sanitary authority points out improvements in by-product disposal, under construction or in planning stage, by five pulp and paper mills in greater Willamette valley. It was against these mills that cease and desist orders were issued last May, to become effective May 1, 1952. Kenneth Spies, assistant chief engineer, said all these mills have made definite plans to control waste disposal.

He pointed out that Crown Zellerbach Corp. is constructing an experimental plant at Lebanon for evaporating and burning waste sulfite liquor. Others are planning lagoons to store waste liquors during the summer months' low-water period, releasing them during winter.

Oregon Pulp & Paper Co. at Salem operated an experimental lagoon during the past summer for impounding sulfite liquor. Spaulding Pulp & Paper Co., Newberg, and Publishers' Paper Co., Oregon City, have developed similar plans.

IRVING W. KERSTEN, assistant superintendent, Kimberly, Wis., mill of Kimberly-Clark Corp., spoke on "Foremen are Management," before an Appleton, Wis., personnel association recently.

BURNING SULFITE LIQUOR

(Continued from Page 72)

Table 4

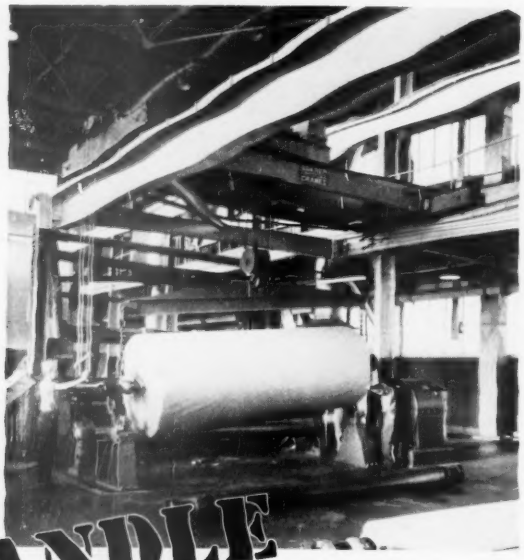
	Lbs. per Hr.
Liquor burned	5,650
Steam generated (actual)	19,640
	P.S.I.
Steam pressure-Boiler outlet	110
	Deg. F.
Steam temperature-Boiler outlet	Saturated
Feed Water temperature	210
Temp. Air-Lv. airheater	615
Temp. Gas-Lv. airheater	465
Temp. Gas-Lv. airheater	69%
Boiler efficiency	69%

2. An arrangement for a new high pressure recovery unit shown in *Figure 8* suitable for use with a turbo-generator for generation of electric power, will operate with an expected performance as shown in the following *Table 5*, when firing liquor of 64% solids and having a heating value of 5020 Btu. per pound of liquor as fired.

Table 5

	Lbs. per Hr.
Liquor Burned	11,300
Steam generated (actual)	34,800
	P.S.I.
Steam pressure-Superheater outlet	420
	Deg. F.
Steam temp.-Superheater outlet	740
Feed Water temp.	220
Temp. air-Lv. airheater	454
Temp. gas-Lv. airheater	388
Boiler efficiency	72.4%

Either of these arrangements, depending upon the individual requirements of the calcium sulfite pulp mill, will satisfactorily dispose of the excess of calcium base sulfite liquor.



HANDLE ROLLS EASILY AND EFFICIENTLY

This 8-ton EDERER crane — like many in use in western pulp and paper mills — was custom-built to *the exact job requirements of the plant where it is* installed. It's a two-motor fixed hoist crane with special spreader for easy roll-handling.

This is another example of engineering and building materials handling equipment that has paid off in man-*hours saved — dollars saved. EDERER "know-how" is* at your service . . . an EDERER engineer will be glad to *talk about your special job requirements.*

50th ANNIVERSARY YEAR

CUSTOM-BUILT EQUIPMENT FOR THE PULP and PAPER INDUSTRY

EDERER ENGINEERING COMPANY

2931 FIRST AVE. SO. SEATTLE 4, WASH.

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EXPORT AGENTS: Frazar & Hansen, Ltd. 301 Clay Street, San Francisco 11, Calif.

STAND-BY, HIGH LIFT, CALENDER, LOG CANTING CRANES • MONORAIL HOISTS

VINCENT W. SUELLAU (left), who has succeeded *Chester M. Brown, now Vice Pres., as Director of Sales of General Chemical Div., Allied Chem. & Dye* Corp., New York. Mr. Suellau was Heavy Chemicals Sales Mgr. since 1944 and during 30 years with Ge. Chem. managed offices from Los Angeles and San Francisco to New York.
ERVIN J. BOOKOUT, (right), appointed General Sales Mgr. for Cochrane Corp., Philadelphia. He had been Cochrane's Eastern Sales Mgr., and before that Sales Engineer in Philadelphia area.

Tomlinson Will Receive TAPPI Medal

Just as this issue went to press, word was received that George H. Tomlinson, vice president and director of Howard Smith Paper Mills, Ltd., Montreal, will receive the gold medal for pioneer pulp development and utilization of wood by-products. The medal will be presented during Paper Week in New York City in late February, 1951.

Salmonson Back On Job

S. A. Salmonson, Pacific Coast representative for Chemical Linings, Inc., of Watertown, N. Y., is back at his Terminal Sales Bldg. office in Portland, Ore., and again making the round of mills after a successful recent minor eye nerve operation.

Two New York Men

For Swenson Line

D. Polderman, Jr., vice president in charge of Whiting Co.'s New York office, announces two additions to his New York sales staff—William G. Dedert and Warren E. Hesler. Both will devote full time to the sale and engineering of Swenson products. Mr. Dedert has been at the Swenson plant in Harvey, Ill., specializing in design and sale of pulp mill recovery equipment. Mr. Hesler has been with Swenson in an engineering capacity.

Hermann Mfg. Names

Koerner on West Coast

The Hermann Mfg. Co., Lancaster, O., manufacturers of Hermann Improved Claflin Refiner and TAPPI Standard Pulp *Testing and Sheet Making Apparatus*, announce C. L. Koerner, 7406 S.E. 17th Ave., Portland, Ore., has been named its western representative.

Mr. Koerner came to the West Coast after extensive mill experience in Wisconsin, with Kimberly-Clark Corp. and the Marathon Corp., Rothschild Division, where he served as plant engineer.

At Marathon, where seven Claflins have been installed, Mr. Koerner was afforded opportunity to become thoroughly acquainted with the role of the Claflin in continuous beating and refining.

"Re-examination"

has a special meaning in 1951

Before contracting for corrosion resistant linings, stock chests and other chemical process vessels, examine the policy of the company offering to do the job.

Stebbins 1951 policy is the same as established in 1884—

QUALITY · RELIABILITY · SERVICE

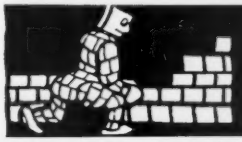
BY QUALITY—we mean the correct materials to do the job successfully.

BY RELIABILITY—we *mean* expert workmanship to assure long time dependable service.

BY SERVICE—we mean continuing interest in the job after installation is completed assuring trouble-free profitable operation.

It has always been the policy of Stebbins to offer its (one contract—one responsibility) service on a just, reasonable and equitable basis.

There never has been or ever will be a substitute for the "Know-how" of *a dependable and trustworthy* organization.



SEMCO

Stebbins Engineering Corporation

TEXTILE TOWER SEATTLE 1, WASHINGTON

PRINTING PAPER PROBLEMS

PARTICIPANTS at Nov. 7 TAPPI meeting at Camas, Wash.—E. H. Nunn, Technical Supervisor, Crown Zellerbach, West Linn, Ore., Moderator; Maurice Adler, California Ink Co., Berkeley, Cal.; Milton Bell, of Abbott, Kerns & Bell, Portland, Ore.; G. R. Cranor, Chief Chemist, Oregon Pulp & Paper Co., Salem, Ore.; B. H. Wright, Chemical Engineer, Crown Zellerbach, West Linn.

Now that the Far West has become a major producer of coated magazine and other printing paper, the allied subjects *of printing, inks, and printing paper were* "naturals" for the Pacific TAPPI section, No. 7, at Camas, Wash.

G. R. Cranor, chief chemist, Oregon Pulp & Paper Co., Salem, Ore., in his paper on "Quality Control of Printing Papers," pointed out that paper manufacturers have the multiple problem of sat*isfying printer, ink men, and end user.* Paper characteristics to be closely observed and kept to the needs of these three include: Physical strength, surface strength, formation, smoothness, softness or compressability, *porosity, moisture,* opacity, color, acidity or alkalinity, grit, ink coverage, and mechanical perfection *of the roll.*

Bruce H. Wright, chemical engineer, Crown Zellerbach Corp., West Linn, Ore., in considering "The Influence of Pulp Characteristics on Printing," said there are no hard and fast rules for developing furnish. Paper to satisfactorily meet *printing specifications should receive at*tention as to uniformity of pulp, ability to form a sheet with surface continuity, and freeness from excessive formation clots. He emphasized importance of main*taining even distribution of long, inter*mediate fine fibers for closing the sheet structure. Pulp strength should be high enough to meet requirements of the press on which it is run. Other important qualities: *Resistance to picking action of* ink, compressability, resiliency for four-color printing, and satisfactory absorbency.

"Problems Arising in Printing" were discussed by Milton Bell, of Abbott, Kerns & Bell, Portland, Ore., printing firm. He said, "Of all troubles lithographers are *heir to, none can be more annoying or* more crippling to production than the antics of paper." These include stretching, shrinking, curling, wavy or tight edges, wrinkles on the press, and paper that be*comes electrified* and defies all efforts to make it "behave in a respectable manner." He finds that paper itself is sometimes to blame, but in most cases it is due to atmospheric humidity getting out *of bounds. He prefers to print paper with* moisture content of about 7%.

Maurice Adler, *California Ink Co.*, Berkeley, Calif., in discussing "Ink Problems," said that ink and paper must be *compatable to the type and speed of press* concerned. He finds that when there is a paper problem there is also an ink problem. Considerable work has been carried out by ink manufacturers on the continu*ously recurring problem of supplying* bright colors for brown kraft paper and container board to match colors printed on other types of paper.

E. H. Nunn, technical supervisor, Crown Zellerbach Corp., *West Linn., presided as* moderator. R. I. Thieme, chairman of the section and technical director, Soundview *Pulp Co., Everett, Wash.*, presided at the dinner session addressed by F. E. Church, assistant *production manager of Time,* Inc.

Control Testing

A panel discussion on "Routine Control Testing Methods" was held at the Nov. 30 meeting of Delaware Valley Section of TAPPI. The panel consisted of C. M. Connor of W. C. Hamilton & Sons, moderator, *and N. V. Edmonson, Scott Paper Co.;* R. E. Green, Thwing-Albert Instrument Co.; E. R. Padavic, Container Corp.; J. T. *Ward, Riegel Paper Corp.*; and K. S. Whisler, P. H. Glatfelter Co.

New Asten-Hill Plant Features Latest Design

Asten-Hill Manufacturing Co.'s new Philadelphia plant is shown in the picture above. Asten-Hill Ltd. at Valleyfield, Quebec, has also enlarged its plant. Papermakers are welcome as visitors.

Both plants were designed and constructed for manufacturing asbestos dryer felts. The Philadelphia plant is among the most modern industrial structures of its kind in the world. The entire building is airconditioned except for the storage and shipping sections. Offices and manufacturing departments are all on one floor.

Windows are provided only to safeguard against claustrophobia, because they will never be opened. Humidity and temperature are closely controlled.

Plier Elected Exec. V.P. of D. J. Murray Co.

New officers for D. J. Murray Mfg. Co., Wausau, Wis., elected at recent board meeting, are as follows: A. W. Plier, executive vice president and general manager; D. J. Everest, vice president; C. L. Durkee, director, vice president and sales manager; W. A. Marquardt, secretary; P. W. Hoeper, assistant secretary; and Grover Keeth, assistant treasurer.

The other officers are F. C. Boyce, president; M. P. McCullough, vice president, and G. L. Ruder, treasurer.

The Kohler System

Dilts Machine Works, Fulton, N. Y., Division of the Black-Clawson Co., Inc., has issued a bulletin (sent on request) about Kohler Unwind and Winding Equipment, the Flying Paster and the Flying Starter. The functions of the Kohler machines are explained.

Germany's Paper Exhibit Moves to Dusseldorf

The Leipzig exhibitions called "Bugra-Messen" are still alive in the minds of the German printers, publishers and their suppliers as having been culminating points of their technical history. These exhibitions made the productions of former German graphic trade well-known all the world over. But Leipzig is now in the Russian Zone so German paper and printing exhibits will be featured at the "DRUPA—International Exposition—Printing and Paper," which will be held in Dusseldorf next spring.

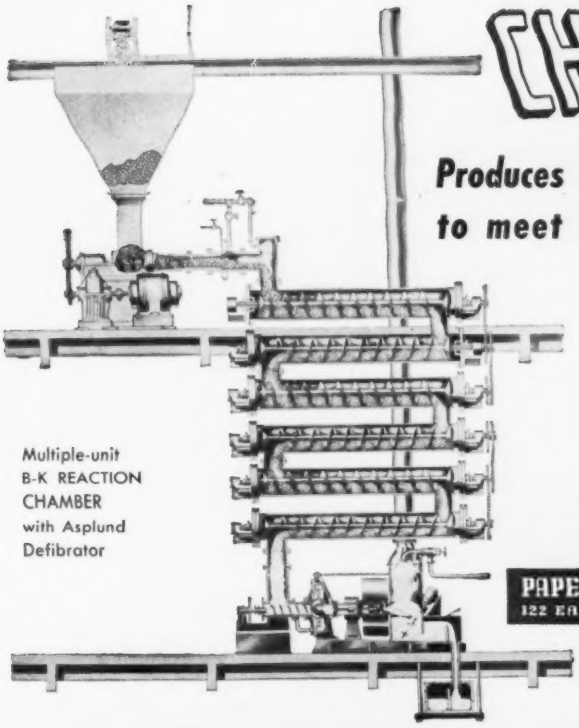
The Dusseldorf exhibit promoters say no professional expert will ever deny the importance of Leipzig as the center of printers and publishers. They believe that once Leipzig, under altered conditions, regains her former importance, she then will continue in every respect the traditions of the "Bugra" from which there is nothing left but the name. Till then, the "DRUPA" will preserve and increase in Western Germany those values which once have helped the "Bugra" gain world-wide fame.

Use

BSM-11 or BUTROL AS PART OF Good HOUSEKEEPING PRACTICE

SLIME CONTROL
WITH ONE PROVEN PRODUCT

Pacific Coast Supply Company
PORTLAND, OREGON - SAN FRANCISCO, CALIFORNIA



Multiple-unit
B-K REACTION
CHAMBER
with Asplund
Defibrator

CHEMIPULPER

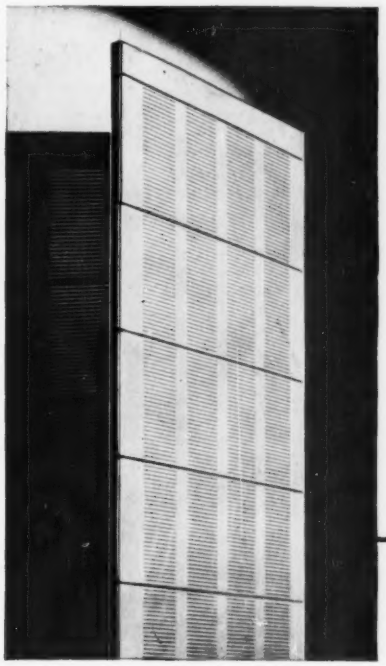
(Patented and Patents Pending)

Produces continuously grades of pulp to meet specific requirements . . .

Cooks either hard or soft woods, or mixtures of such woods for making .009 for corrugating; flooring, roofing and automotive felts, and insulating board. Units built with from 2 to 8 tubes, operating continuously in 150 to 175 p.s.i. steam pressure range; from 4 to 45 minutes reaction time, and handling up to 100 tons a day of wood chips dry basis. Several chemical agents of varied concentration are applied to the Chemipulper operation, the most generally used being the neutral sulphite and kraft cooking liquors.

PAPER and INDUSTRIAL APPLIANCES INC
122 EAST 42nd STREET ● NEW YORK 17 N.Y.

Catalog upon request



Here's Why More Than

30,000 FABRICATED SCREEN PLATES

Are Now In Service

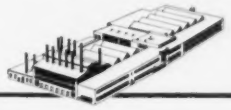
"Hardy" fabricated screen plates, made by Magnus, have a high-strength, thin-sheet design—specially engineered for maximum flow. That's why you're sure of these 3 service-proved advantages:

1. **Increased Plate Capacity**—The thin sheet eliminates relief milling, and with recommended arrangement, substantially increases capacity per plate.

2. **Longer Life**—Slots remain sharp, side walls highly polished for the life of the plate. There's greatly improved corrosion resistance.

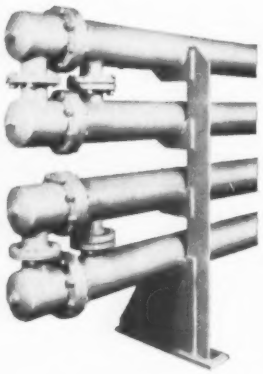
3. **High, Sustained Yield**—You get consistent, uniform quantities of cleaner pulp.

It all adds up to improved performance at reduced operating costs. Complete information is yours on request. Or if you like, we'll gladly have an engineer call.



MAGNUS METAL CORPORATION, *Fitchburg, Massachusetts*
Metalworkers for the Paper Trade

SCREEN PLATES: BRONZE, CHROME-NICKEL-STEEL, AND INCONEL
VALVES: GATE, SWING CHECK, BLOW, GLOBE, ANGLE AND "Y"



Full Contra-Flow Multi-pass Heat Exchanger Assembly

Stainless Steel Spray Liquor Coolers for Absorption and Cooling Towers

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ALASKAN COPPER WORKS

DESIGNERS and FABRICATORS

"Since 1913"

Seattle Wash.

Rust Engineering Sponsor

A $1,000 company membership in the University of Maine's new Pulp and Paper Foundation from the Rust Engineering Co., Pittsburg, Pa., is announced by John B. Calkin, director of the U. of M. Department of Industrial Cooperation. Rust Engineering provides engineering and construction service for mills.

WANTED

Chemist to conduct research on pulp bleaching especially on modern multistage bleaching of pulps. It is desired that applicant have industrial experience in above fields. Send outline of background on experience, and a recent snapshot to the **Director of Personnel, Central Research, Marathon Corporation, Rothschild, Wisconsin.**

WANTED

Engineering draftsmen for drawing board work on heavy machinery. Men with paper mill experience preferred. State age, experience and salary expected.

The BAGLEY & SEWALL COMPANY
Watertown, New York
Phone 1200

HELP WANTED

General Converting Foreman for Southern Kraft Mill to supervise operation of sheet cutters, rewinders, bag and gumming machines. Experience in all lines desirable but not necessary. Application should contain complete summary of experience, education, etc. Excellent location and climate. Please reply to Box P&P-88, c/o PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

Benefits for Service Men

Crown Zellerbach employes who enter U. S. military service will have their retirement plan benefits protected under provisions of an amendment to the retirement plan adopted by the board of directors. The amendment is subject to approval of the Internal Revenue Department.

The action means substantially that employes who enter the armed forces, will be credited with benefits equal to those which would have accrued had they remained on the job.

A LARGE LUMBER PRODUCER in the Southern part of the United States who is a client of ours is desirous of adding to their executive management. The company has a long timber life, modern plant, and an aggressive marketing policy. A man who is unable to reach the top in his present location is offered the chance to achieve that advancement. Need not necessarily be in top position now but should show growth possibilities. Should be seasoned in a position where he is qualified in logging, manufacturing, and marketing.

State thoroughly and completely your qualifications to us. All conferences will be extremely confidential to allow full and free discussion.

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Attorneys
1108 Richards Building
New Orleans 12, Louisiana

Personals

News About Industry "Affiliates" The Equipment and Supply Men

GEORGE R. WALLACE, president of Fitchburg Paper Co., Fitchburg, Mass., and Mrs. Wallace, went to Honolulu for a late fall vacation after visiting West Coast cities.

E. W. MURPHY, 82, one of the pioneers of the paper trade in Southern California, and president, Johnson, Carvell & Murphy, Los Angeles, died Nov. 15. He was survived by his son, E. M. Murphy, vice president of the company; and by a daughter, Miss Kathleen.

J. D. ZELLERBACH, president of Crown Zellerbach Corp., participated at meeting of C-Z foremen and supervisors, and wives, Dec. 5, at Camas, Wash. He spoke on his experiences as ECA administrator in Italy.

WILLIAM BARCLAY, vice president, Powell River Sales Co., Vancouver, returned recently from a six months' vacation, during which he visited several European countries.

FRANK W. THORNHILL has been appointed president and general manager of the Hudson Paper Co., subsidiary selling organization for Pacific Mills. He has lived in Winnipeg for the past forty years, and joined Hudson Paper Co. in 1934.

E. CRAWLEY WILLIAMS, JR., has succeeded *PAUL B. LACY* as manager of West Virginia Pulp and Paper Co.'s mill at Covington, Va., in accordance with a long-standing plan of the latter executive to retire on his 60th birthday. Mr. Williams, who joined the organization upon graduation from Virginia Polytech in 1934, has been assistant manager in charge of production. His predecessor will remain as special consultant for long-range planning.

WALTER H. HERMANN, president of The Hermann Mfg. Co., of Lancaster, O., died Nov. 8. George A. Hermann, who succeeded Walter, has been active sales head of the firm and is widely known because of his contacts in the pulp and paper field.

WANTED—USED MOTORS

2—150 or 175 H.P. 440 volt, 3 phase, 60 cycle, 450 RPM motors, including starting compensators and contactor boards. Exciters not needed.

or

2—175 H.P. squirrel cage 440 volt, 3 phase, 60 cycle, 450 RPM motors, with starting compensators.

We can offer for sale or exchange two 550 volt motors to be released after purchase and installation of the 440 volt motors. Further details on request. In replying please give full information on 440 volt motors, including price. Please reply to P&P Box No. 89, c/o PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

TENNESSEE CORPORATION

SULFUR-DIOXIDE

HIGHEST QUALITY

SO_2

FOR COMMERCIAL USE

One of the newer chemicals with hundreds of uses. Economical and convenient to use.

BLEACHING AGENT

For paper pulp, textiles, many food products, minerals and other materials.

DECHLORINATING AGENT

Removes excess chlorine in paper pulp, in laundries and in textile bleaching.

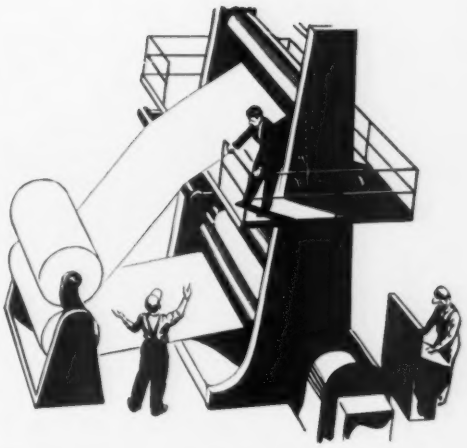
CHEMICAL PROCESSING

SO_2 has many uses in chemical processing such as oil refining, manufacturing of plastics and as a leather tanning agent.

CYLINDERS
TON DRUMS
TANK CARS

Let us consult with you on the various ways that Sulphurs Dioxide can be economically and efficiently used in your business.

TENNESSEE TC CORPORATION
601 GRANT BUILDING ATLANTA, GEORGIA



Have trouble meeting Calendering schedules?

Are frequent calender breakdowns causing your mill to lose valuable production time . . . throwing tight calendering schedules out of line?

Try Butterworth Calender Rolls in your stack. Keep a record of the additional hours of service you get. See how quickly calender breakdowns and production delays become a thing of the past?

Many of America's leading paper mills have found that it pays to standardize on Butterworth Calender Rolls. You get smoother, better quality paper at lower costs. That's because Butterworth Calender Rolls are made to exact specifications from the finest materials available.

Before delivery, Butterworth Rolls are pretested for strength, hardness and density. A special process locks the rolls to the shaft so they can't slip or come loose.

We make calender rolls for all types of calendering in every size to your specifications. We can also refill your present rolls.

For full information, write or call H. W. Butterworth & Sons Company. Bethayres, Pa.—40 Fountain St., Providence, R. I., 1211 Johnston Building, Charlotte, N. C.

Representatives in Principal Cities of the World

Butterworth Calender Rolls

UNION SCREEN PLATES

are the result of

70 Years

of working with paper makers *to solve their problems*

Pulp Chief

Back again at the Institute of Paper Chemistry, Appleton, Wis., where he studied for a year before World War II, is Donald James Maclaurin (left), as research associate and chief of the pulping section of the Institute. It has been several months since he was appointed.

Mr. Maclaurin received his A.B. in chemical engineering from the University of British Columbia in 1932. After graduate work at the University of Washington, 1935-1936, he received his M.S. from the Institute of Paper Chemistry in 1937.

From 1932 to 1935 he was with British Columbia Pulp and Paper Co., Ltd., in operating and technical work. From 1937-1946 (except for war service), he was with Spruce Falls Power and Paper Co., Ltd., Kapuskasing, Ont., advancing from assistant sulfite superintendent to technical superintendent. He was with Powell River Co., Powell River, B. C., 1946-50, as control superintendent and later technical director.

Appleton Woolen Mills Names Representatives

Claire Turner has been engaged by Appleton Woolen Mills, Appleton, Wis., sales department to service the New England states, territory previously covered by Joe Mooney who recently retired because of illness. Mr. Mooney resides in Portland, Me.

Mr. Turner is a native of Ladysmith, Wis., starting his paper apprenticeship in that community and continuing activity for 25 years in the paper field in Maine, New York, Illinois and Ohio, in woods operation and extending through production control and management. Mr. Turner is married and has a son attending Ohio State. He will move his family to Portland, Me., or its vicinity.

Lou Everlien, of Appleton Woolen Mills, who formerly serviced the Central Mid-West and Central East, will cover the states of New York, Pennsylvania, New Jersey, Delaware, Maryland and the Virginias hereafter. The Midwest will be serviced from Appleton headquarters.

105 Thilmany Employes Earn Gold Watches

Something new for a service award dinner was when Elmer Jennings, president, and Charles R. Seaborne, executive vice president, of Thilmany Pulp & Paper, simultaneously presented each other with gold watches, before the Thilmany Quarter Century Club dinner, Nov. 29, in Kaukauna, Wis. They were among 105 Thilco veterans who received watches for 30 years or more service.

Special bonus checks for 50 years of service were presented by Chairman Karl E. Stansbury to Ben Rademacher, Fred Goetzman and Otto Doering.

ERNST MAHLER, JR., son of the executive vice president of Kimberly-Clark Corp., was married Nov. 18 in Neenah, Wis., to Miss Elizabeth Anne Vining, of Tryon, Wis., a recent graduate from Duke University. Young Mahler, a World War II Coast Guard veteran, operates the Chinquapin Dairy in Tryon.

W. DUNSTON, JR., of Gallin & Co., Australian paper distributors, visited British Columbia recently and went to Powell River Co. as a guest of the company.

Swedish Mill Closes

The pulp mill of Bowater Paper Corp. at Umea, Sweden, is to be closed down and that production will be concentrated in the corporation's other plant at Sofiehem, a short distance from Umea. According to the report, there will be no decrease in production, as the more modern plant at Sofiehem is being expanded.

Potdevin Coater

A multi-purpose coating attachment for underside and top web coating is a new development of the Potdevin Machine Co., of Brooklyn, N. Y. Called the "BTC," it is fitted with special brackets permitting mounting in any position—for top, side or underside coating. The "BTC" is particularly suited for applying adhesives in widths up to 21 inches to webs running at any speed.

they work slow

so that **you** may work fast...

The fabric upon which these women are working has just been removed from the loom on which it was woven in a single strip. They are converting it into an endless belt, weaving the ends together by hand. Their workmanship is so perfect that the keenest examination will be unable to discover where the loom left off and hand weaving began.

This patient, precise, time-consuming method of working is characteristic of every operation in the manufacture of Hamilton Felts, from the selection of the wools to the shrinking, fulling and finishing. It is a *tradition,* handed down through four generations. It explains why Hamilton Felts run true at all speeds of paper and board machines—why they remove more water—why they leave no felt marks on either side of the sheets.

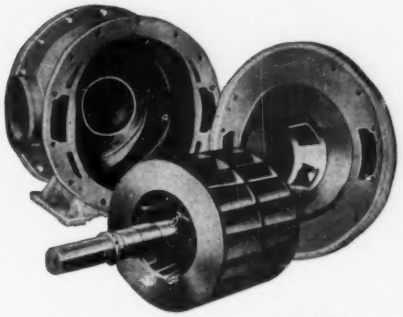
SHULER & BENNINGHOFEN, HAMILTON, OHIO

Miami Woolen Mills

Hamilton Felts

Established 1858

SIMPLICITY



NASH VACUUM PUMPS HAVE ONE MOVING PART

Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. *There are no valves, no pistons* or sliding vanes, no internal parts requiring wear *adjustment or lubrication.*

NASH ENGINEERING COMPANY
SOUTH NORWALK, CONNECTICUT, U. S. A.

HERMANN
CLAFLIN REFINER

CONTINUOUS
BEATER and REFINER

NOW: Fifteen large No. 3 units in operation on Kraft Pulp making Cement Sack, Envelope, Gumming, Asphalting and Waxing. Production up to 200 tons and more per day, with 200 H.P. to 350 H.P.

Mfgrs. Also: TAPPI; Standard Pulp Testing and Sheet Making Apparatus.

THE HERMANN MFG. CO.
LANCASTER, OHIO

BLOEDEL, STEWART & WELCH · LIMITED
VANCOUVER · BRITISH COLUMBIA

LOGS · PACIFIC COAST LUMBER
UNBLEACHED KRAFT PULP
RED BAND CEDAR SHINGLES
PRES-TO-LOGS

"HERE TODAY AND HERE TOMORROW"

Canadian Sales Offices:
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J. O. THORPE, FORT GARRY HOTEL, WINNIPEG, MAN.
BLOEDEL, STEWART & WELCH SALES LIMITED
Bank of Montreal Bldg., 50 King Street West, TORONTO, ONT.

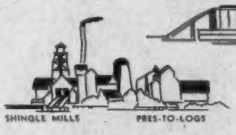
VIRGIN TIMBER

REFORESTATION

PULP MILL

SAWMILLS

LOGGING OPERATIONS


SHINGLE MILLS PRES-TO-LOGS

OREGON* CHAIN

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GREEN BAY PLANT

(Continued from Page 60)

Bay plans were first published in PULP & PAPER.

Mr. Mackin was an industrial specialist and paper technologist with the Forest Products Laboratory. During his 15 years at the Laboratory he was active in the field of semichemical pulp and papermaking. Born in Ladysmith, Wis., and an alumnus of the University of Wisconsin, he first worked in the Wisconsin Blue Print Co. and later was manager of the offset-lithograph division before joining the Laboratory's staff.

Lloyd "Curly" Lang, general superintendent, is well known in the industry. He was many years with Kimberly-Clark in development and shortly before going to Green Bay spent a period at Crossett, Ark., in pulping developments. His brother, Lyle Lang, is sulfite superintendent at Bowater's Newfoundland Mills, one of the biggest, and another younger brother is at Marinette, Wis., in technical duties.

Pulp Mill Superintendent "Hu" Miller, as we stated, came to Green Bay from initial semichemical sulfite pulping experience as superintendent of the pilot plant operation at Watervliet Paper Co., in Watervliet, Mich., where coated papers were the product. Born in St. Louis, he attended Washington University where he obtained his B. S. in chemical engineering. He was with Central Fibre for a long time at Hutchinson, Kan.

William Nelson, technical engineer, is a University of Wisconsin graduate of the class of 1949 in chemical engineering.

Robert Wilkes, the paper mill superintendent, is—like Mr. Lang—member of a family of brothers known far and wide in papermaking. Stanley Wilkes until recently was mill manager of the new Atenquique pulp and board mill in Mexico; Felix is with another semichemical plant—American Box Board Co.'s at Filer City, Mich.; Edward and Jack were last reported in Midwest mills, and Walter in the South. Robert came to Green Bay from National Container Corp., Jacksonville, Fla. All six papermaking brothers originally started in Wisconsin, so he was coming back home.

E. MACKENZIE MAXWELL has been elected president, and *D. G. ROGERS* executive vice president of National Aniline division of the Allied Chemical and Dye Corp. Mr. Maxwell succeeds *B. A. LUDWIG*, who retired after 53 years with the company and its predecessors, on Oct. 1. He died just 8 days later, after a long illness. Both Mr. Maxwell and Mr. Rogers have been with National Aniline many years in ascending to executive spots.

Florine Opens Swenson-Whiting Office in Seattle

To better serve Northwest industry, G. E. Seavoy, vice president, announces Whiting Corp. has opened a district sales office in Seattle, at 350 Skinner Building. R. E. Florine (shown in picture) has been appointed district manager and will be responsible for the sale of Swenson evaporators and chemical machinery in Washington, Oregon and Idaho, as well as Whiting cranes and other Whiting equipment. Mr. Florine is a graduate chemical engineer, Washington State College, 1940, with a number of years of practical engineering and sales experience. During the war he served as engineering officer aboard an escort carrier. For five years he has been a sales engineer in Whiting's office in New York.

American Cyanamid Man

Dr. J. R. Dudley, of the new products development division of American Cyanamid Corp., recently visited mills in the Pacific Northwest. He was accompanied by Ed Garrison, manager at Seattle offices.

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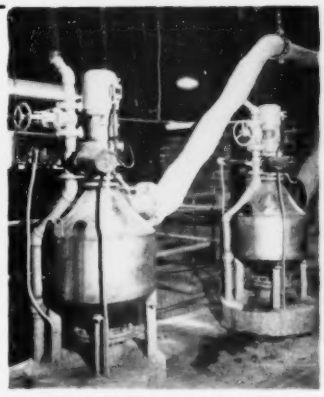

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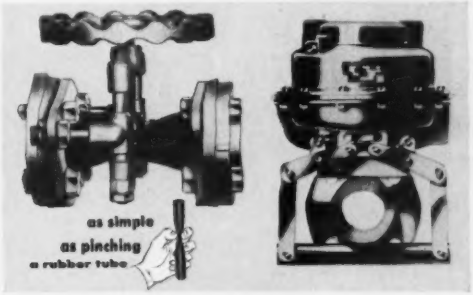

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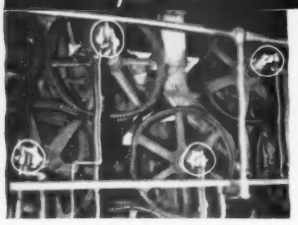

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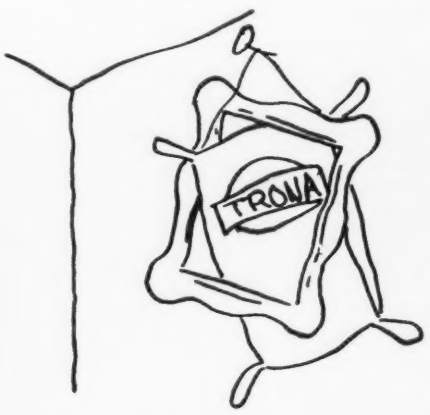

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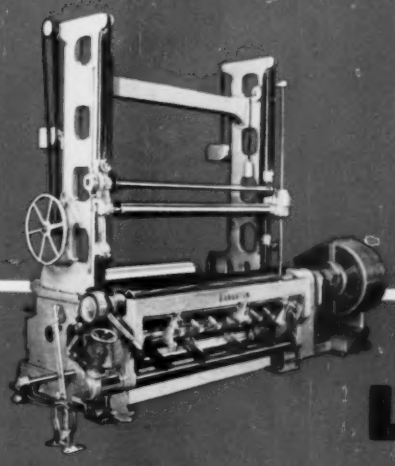

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